TECHNOLOGY DEPT.

NEW EQUIPMENT DIGEST

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MAY 17 1943
DETROIT

EQUIPMENT • IMPROVEMENTS • PROCESSES • MATERIALS • METHODS • APPLICATIONS • LITERATURE

Vol. 8 May, 1943 No. 5

CLASSIFYING DEVICE

Developed to automatically classify and sort 0.30 and 0.50-caliber armor piercing buttet cores and 20-millimeter shell, Toledo dynamic classifying device has similar applications in other industries. Pieces to be weighed or classified must be of such character that normal variations in weight do not materially affect position of center of gravity. Weights from ¼ ounce up to 6 ounces can be handled.

Individual parts are moved automatically, one at a time, from drum on top of device to scale. Loaded end of scale lever is released, permitting that end to fall. Parts are weighed in motion. They are then discharged into one of three chutes, which classifies them as "underweight", "within tolerance" or "overweight". Devices are also available in semi-automatic models. Made by **Toledo Scale Co.**, P. O. Box 97, W. Toledo Sta., Toledo, O.

▲ Mention Item NED-2234 when writing ▲

ANTI-ABSENTEE PLAN

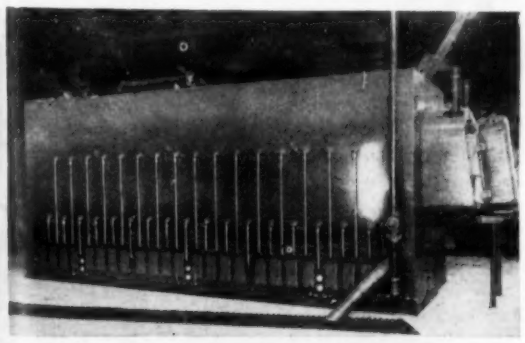
Intended to promote friendly competition between departments in industrial plants to reduce inexcusable absenteeism, this absentee recorder provides means for charting avoidable absenteeism. Six colors and forceful illustrations emphasize eye appeal. Center panel consists of 12 easily manipulated slides for various departments. These slides record percentage of avoidable absenteeism in each department. Where necessary, two departments can be recorded in single column to accommodate up to 24 departments.

Already introduced in several industrial plants, this plan is claimed to have reduced absenteeism radically. Additional aids in controlling this problem are provided in form of "Iron Cross" awards for departments having poor attendance records and merit awards for departments having high attendance records. Both of these awards are large in size and can be placed conspicuously. Recorder lists for $20.00 and awards are available at $10.00 each. Made by **Regent Specialties, Inc.**, 166 Lyell Ave., Rochester, N. Y.

▲ Mention Item NED-2235 when writing ▲

HEAT TREATING FURNACE

Claimed to be one of the largest chemically-neutral atmosphere furnaces in use by industry, this Lithco heat treating furnace is in operation in large propeller manufacturing plant.



Design is such that no atmosphere adjustments are required. Consistently uniform decarb-free hardening results at all times. Chemically-neutral atmosphere nullifies any contaminating influences including furnace gases, moisture and water vapors. Clean, bright work is obtained, eliminating need for cleaning, pickling or descaling operations.

Muffle measures 3 feet wide, 3 feet high and 25 feet long. Working temperatures range from 900 to 2100 degrees Fahr. Roller type support for muffle compensates for expansion and contraction. Wall insulation is 16 inches thick. Even heat distribution is obtained through use of thirty-six burners. Capacity of furnace is approximately 3000 pounds per hour. Made by **Lithium Corp.**, 111 Sylvan Ave., Newark, N. J.

▲ Mention Item NED-2236 when writing ▲

SHIFT SCHEDULE CALCULATOR

Making possible selection of working shift schedule in industrial plants which will be equitable to all employees, this Shiftograph is rotating disc type calculator. When used as perpetual work shift schedule, turning of single dial shows at glance what shifts certain crews will work and their days off. This device provides for several different plans of shift rotation wherein all employees are treated alike in that they share equally in desirable and undesirable work shifts. Available free from **George S. May Co.**, 2600 North Shore Ave., Chicago, Ill.

▲ Mention Item NED-2237 when writing ▲

CEILING TYPE LOCKERS

Utilization of ceiling areas in change rooms of industrial plants is possible with these mine type hanging ceiling lockers. Clothing is placed in wire baskets, and coats hang on hooks prior to being hoisted to ceiling by means of conveniently located chains. Locking hasp on chain holder assures safety of contents of baskets. Pull chain passes over two pulleys, as shown, so that basket may be easily raised or lowered.

In addition to illustrated basket, coat hanger combination unit is also available. Clothing is open to air for complete ventilation. Made by **Kasper Wire Works**, Shiner, Texas.

▲ Mention Item NED-2238 when writing ▲

STACK EXHAUSTER

Transformation of any roof ventilator into power fan exhaust unit is accomplished with this Wolverine stack exhauster which is built to operate equally effectively in either vertical or horizontal position. It can be used in new or old duct systems. Made in wide range of sizes and capacities, exhauster meets all capacity, efficiency and noise level requirements, it is claimed.

Construction is of heavy gage steel, re-inforced with cross member for motor support welded to inner circumferential steel ring. Propeller and motor are conveniently accessible for cleaning or lubrication through inspection door. Made by **Belanger Fan & Blower Co.**, 1234 Eighteenth St., Detroit, Mich.

▲ Mention Item NED-2239 when writing ▲

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Read Carefully
CHECK AND PASS ON

CHECK	NAME AND TITLE	SEE ITEM NO.

PLASTIC DRILL HOUSINGS

Made with shredded cotton duck base, plastic material called Drillite is used for housings for ¼ and ⅜-inch drills. Plastic is claimed to have high impact and heat resistance and to be excellent insulator against dielectric shock. Complete unit shows marked reduction in weight as compared with former models using metal housings.

Tools are offered with either end handle or side handle control. They are equipped with pistol grip and trigger switch, and with universal motors operating on alternating or direct current. Made by **Black & Decker**, 762 E. Pennsylvania Ave., Towson, Md.

▲ Mention Item NED-2240 when writing ▲

Do YOU Know?

■ HOW industrial workers can obtain special ration stamps for the purchase of safety shoes is explained in pamphlet entitled, "New OPA Regulations." In addition, booklet outlines how and where these stamps may be issued in the plant. Copies available from Lehigh Safety Shoe Co., Dept. N, Allentown, Pa.

▲ Mention Item NED-2241 when writing ▲

Tough, wear resistant and practically indestructible, two new types of decalcomania nameplates are quickly and permanently attached to raw, polished or crinkle-finished metal surfaces. Though now applied to combat communication equipment, use of these decals will probably be extended to other equipment. Made by Meyercord Co., 5339 W. Lake St., Chicago, Ill.

▲ Mention Item NED-2242 when writing ▲

Maintenance of industrial equipment is subject of regular publication, "Victory Production and Maintenance News," which exchanges ideas and explains various tips on proper maintenance. Maintenance men and executives can receive this publication regularly by writing to Allis-Chalmers Mfg. Co., 6900 Norman St., Milwaukee, Wis.

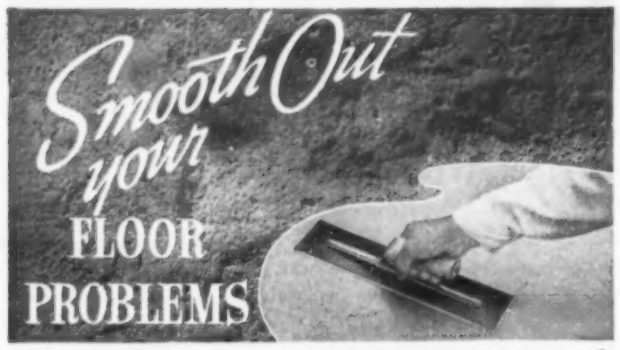
▲ Mention Item NED-2243 when writing ▲

Aero quality Lumarith transparent aircraft plastic screens or filters out all of the severe sunburn producing ultra-violet rays of the sun. Use of this plastic minimizes danger of painful or harmful sunburn to army and navy fliers on long bombing flights at high altitudes. Lumarith is product of Celanese Celluloid Corp., 180 Madison Ave., New York City.

▲ Mention Item NED-2244 when writing ▲

Plastic plywood is being used in place of standard cast metal plate in manufacture of pianos. Manufactured only for the armed forces, these pianos are claimed to give same tone and performance as standard designs. Developed by Weaver Piano Co., York, Pa.

▲ Mention Item NED-2245 when writing ▲



with PLASTIC ROCK!

Trowel a smooth, tough, plastic surfacing right over your old concrete or wood floor.

Plastic Rock comes complete, packed in barrels. Nothing more to buy. No application "formula" to confuse you. Simply mix and trowel right over old floor. Average depth one-half inch. Old floor Saturday is a new floor Monday. Also patches concrete to a perfect feather edge. Plastic Rock is absolutely spark-proof, skid-safe wet or dry, dustless, silent. Feels like cork under foot. Cannot splinter, crack, crumble, curl or loosen. Heavy loads in steel wheels actually improve it. Five-year old floors show no wear. Natural color is dark gray. Also furnished in red, green and brown. Used by U. S. Army, Navy and largest industries in America. Your contractor or your own crew can apply.

Ask for your copy of Report 220-5

UNITED LABORATORIES, INC.
16801 EUCLID AVENUE • CLEVELAND, OHIO

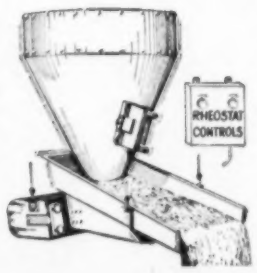
▲ Mention Item NED-2246 when writing ▲

SYNTRON

ELECTRIC VIBRATORS — VIBRATING FEEDERS

with adjustable power, on those troublesome bins and hoppers to keep their contents agitated and free-flowing.

Little 4 lb. models—up to BIG 500 lb. sizes.



under those bins and hoppers to regulate their discharge by rheostat control of rate of flow.

Capacities from ounces to TONS per hour.

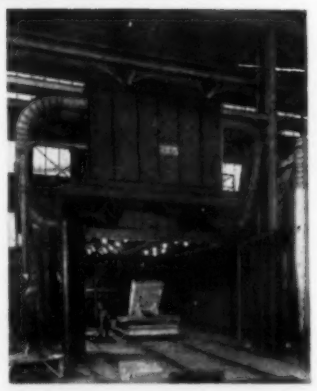
No Motors—Gears—or other Moving, Wearing Parts
Low Initial Cost—Low Operating Cost

Catalogue literature available.

SYNTRON Co., 405 Lexington Ave., Homer City, Pa.

▲ Mention Item NED-2247 when writing ▲

PRODUCTION & SAFETY Go Hand in Hand



Production and Safety go hand in hand when castings, forgings, stampings or heat-treated parts are cleaned by Pangborn ROTOBLAST or AIRBLAST equipment — and the resulting dusts are collected and disposed of by Pangborn Dust Control.

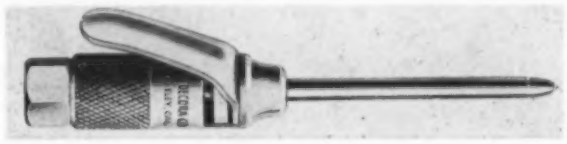
If you want SPEED in Cleaning—plus SAFETY from dust nuisance—"COME TO PANGBORN." Send for new condensed general Bulletin—fully illustrated.

PANGBORN

WORLD'S LARGEST MANUFACTURERS OF BLAST CLEANING AND DUST COLLECTING EQUIPMENT
PANGBORN CORPORATION • • HAGERSTOWN, MD.

BLOW GUN

Lever type trigger action of Decora model RB-1 blow gun gives operator positive control of air volume at all times. This dusting tool operates with natural closing of hand no

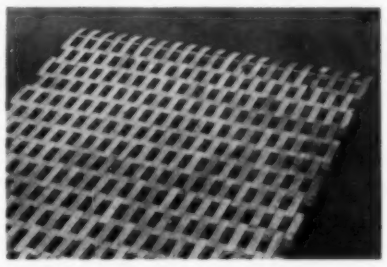


matter how it is grasped. Long slender nozzle facilitates cleaning of cracks and small places. Nozzle is in direct line with hose, thus flow of air is unobstructed.

Gun is constructed of steel and brass, finished with Udylite plating and is offered with choice of either 5/64 or ⅛-inch nozzle orifice. Air washer is readily replaceable with Schrader chuck washer. Price of gun is $1.00. Made by **Decora Mfg. Co.**, 1823 Fifth St., Berkeley, Calif.

▲ Mention Item NED-2249 when writing ▲

WOOD LINK MAT

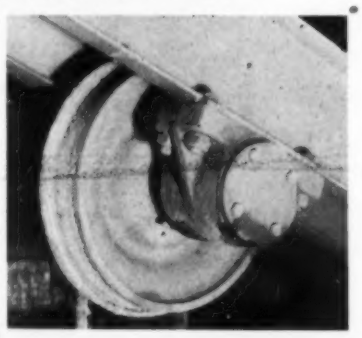


Replacing rubber matting, flexible wood link mats are light in weight and can be rolled or folded up for easy handling and cleaning. Lying flat, they follow contour of floor. Wooden matting is comfortable to stand on and affords good drainage. Ends are beveled to reduce danger of tripping.

Mats are finished in natural wood color. They are 1 inch thick and are available in stock sizes of 18 x 32 inches, 24 x 38 inches and 30 x 44 inches. They can also be obtained in special sizes of any length and up to 36 inches in width. Made by **American Mat Corp.**, 1733 Adams St., Toledo, O.

▲ Mention Item NED-2250 when writing ▲

CAR WHEEL ASSEMBLIES



Available with 14, 16 and 18-inch wheel diameters, these car wheel assemblies provide anti-friction bearing units for application to core oven cars, mold drying cars and similar material handling units which operate on rails. Assemblies are easily installed and may be used either for new equipment or replacement of units having friction type bearings.

Each wheel assembly is equipped with roller bearings and may have grease fittings for normal temperature applications. Axial movement of wheel is limited by two spacers. Semi-steel cast wheels have chilled rim and flange. High carbon steel rollers operate in hardened and ground sleeve which is pressed into bearing housing. Axle is of case hardened, ground steel. Made by **Erie Engine & Mfg. Co.**, P. O. Box 885, Erie, Pa.

▲ Mention Item NED-2251 when writing ▲

"Switch" to STANDARDS

—and Keep MORE Carbide Jobs Running with LESS Reserve Stocks!

The planned use of *standard* styles of carbide tools and blanks, in place of made-to-order "specials", can bring these important benefits to your plant: With *standards* you can meet your carbide tool demands more promptly. • With *standards* you can reduce your carbide tool inventory (and still maintain normal tool crib service—even with an increasing use of carbides). • With *standards* you can fill most emergency requirements usually the *same day* the need arises. • Here is the way to obtain the benefits of carbide tool standardization in your plant:

1. Check your made-to-order carbide tools against *standard* carbide styles. You'll find that just 10 *standard* styles—used either "as is" or quickly adapted by grinding to special shapes—can be used for 50% to 75% of your jobs. **2.** Check your carbide tool stocks. With *standards*, you'll no longer need individual reserves for each of hundreds of special styles. Instead, you'll have a flexible master stock based upon not more than 10 *standard styles*. **3.** Check your carbide tools that MUST be "specials." Although the tool is special, the blank can often be *standard*. Keep a small master stock of those *standards*; braze them on your tools or cutters the same day the need arises. No "delivery" delays.

CARBOLOY COMPANY INC., 11163 E. 8 Mile Blvd., Detroit, Mich.
Birmingham, Ala. • Chicago • Cleveland • Los Angeles • Newark • Philadelphia
Pittsburgh • Seattle

CARBOLOY CEMENTED CARBIDE
TRADEMARK

▲ Mention Item NED-2252 when writing ▲

ARMOR-PLATE saves LIFE AND LIMB

Another "ULI" sensation! Insurance against falls and injury—*wherever feet may slip.* Just spray or brush Armor-Plate on dangerous surfaces, and save limbs and lives. Abrasive texture like No. 3/0 emery cloth. For metal floor plates, stair treads, ramps, corridors, airplane wing "steps," ship decks, gangplanks, truck running boards, stepladders—wherever wet, oily or slippery surfaces hamper production and threaten life. Rust-inhibiting. Sticks to wood, metal, concrete, slate, and glass. Cost applied, less than 1c per sq. ft. Jobs three years old show no wear. Choice of gray, red, brown or green.

FREE—Report No. 419-E, applied sample attached

UNITED LABORATORIES, INC.
16801 EUCLID AVENUE • CLEVELAND, OHIO

▲ Mention Item NED-2253 when writing ▲

If you can furnish reasonable priorities, we can make delivery within four weeks of any size American Bench Center. Three sizes: 8" x 36"; 6" x 24" and 4" x 10"

NEW DESIGN: Improved box type bed; three feet, always sets solid on bench.

INCLINED FACE: Allows additional space for operator's hands. Prevents it from becoming catch-all for tools.

ADJUSTABLE HEADS: Work can be quickly adjusted in and out of centers.

QUICK CHECK: Dial indicator reads to half-thousandths. Ruggedly built for inspection or production work.

Send for Bulletin 43-NED

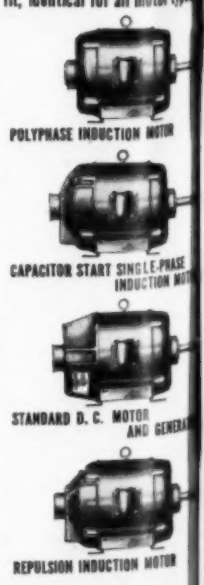
THE AMERICAN GAUGE CO.
125 Bayard Street DAYTON, OHIO

▲ Mention Item NED-2254 when writing ▲

NEW! the only complete line of motors in which *all types* in any one frame size are *interchangeable* and similar in appearance!

R & M *Uni-Shell* MOTORS

ONLY END HEADS CHANGE. Every dimension, from body to head fit, identical for all motor types.



Here's one of the biggest improvements in electric motors in years! Greater interchangeability of *all motor types* than has ever been known before!

Within cylindrical shells of steel we are building not only the finest line of motors we've produced in 50 years, but motors that—for any one frame size—have *identical* shell dimensions, head fit, bolt circle holes, base, shaft size, and conduit box mountings. Where one type of Uni-Shell motor can be mounted, so can any!

30 months in development, and thoroughly proved in hundreds of applications, R & M Uni-Shell motors embody many other improvements, too. If you use electric motors in war production, write for 20-page, fully illustrated booklet giving full details!

ROBBINS & MYERS, INC.
MOTOR DIVISION, SPRINGFIELD, OHIO
HOISTS & CRANES • MACHINE DRIVES • FANS • MOYNO PUMPS • FOUNDED 1

▲ Mention Item NED-2255 when writing ▲

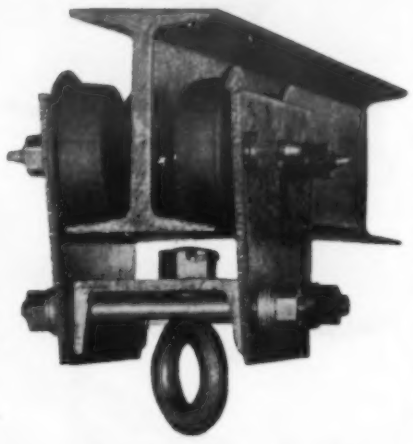
GRAY TROLLEYS

are **SAFE** and **EFFICIENT** with **CLOSE HEADROOM**

•

EQUIPPED WITH GRAY Thoroughly Sealed Ball Bearing Trolley Wheels

•



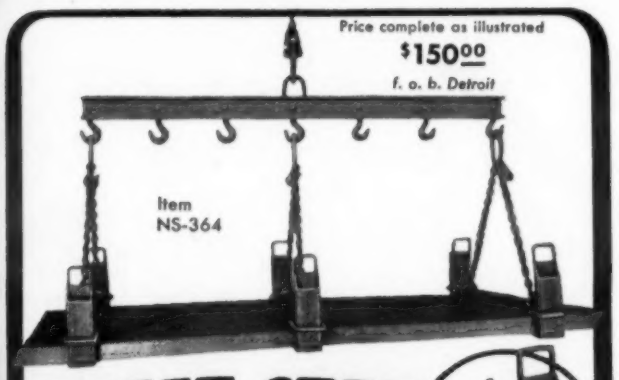
Long trouble-free service is what you get with every Gray trolley equipped with new type. Gray ball bearing trolley wheels which take maximum radial and thrust loads. Gray trolleys are easily transferred through the shop and can be furnished in 250 lb. to 2 ton standard capacity sizes adjustable to suit various size I-beams. Write for illustrated bulletin describing features of Gray trolleys and trolley wheels.

GRAY HUB COMPANY

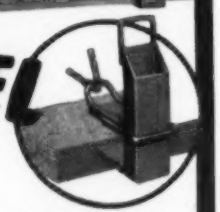
Incorporated 1922

17265-17403 GABLE AVENUE DETROIT, MICHIGAN

▲ Mention Item NED-2256 when writing ▲



SHEET STEEL GRAB



For handling sheet steel bundles, any size lift, 0" to 9" thick, 18" to 48" wide and up to any length. For short bundles use single "Grab"; for average size use two "Grabs"; for long flexible bundles, three "Grabs" as illustrated. Capacity, one ton per sling; arrangement illustrated handles three tons. Holds without slippage, distortion or damage to stock. For high or low head room. Supporting beam measures 6' long; complete unit as illustrated heavily constructed throughout; shipping weight approximately 190 lbs.

Palmer-Shile Co.

7114 West Jefferson Ave., Detroit, Mich.

▲ Mention Item NED-2257 when writing ▲

Coil Stock

Feed it faster with LITTELL AUTOMATIC CENTERING REELS

At Left—No. 3 LITTELL Automatic Centering Reel. For easy, rapid, efficient, economical handling of coiled stock. Capacity, 600 lbs. Takes coils max. width 10", max. O.D. 48", I.D. 8½" to 21". Motor-driven Reels for handling coils up to 6,000 lbs. Coil Cradles for coils up to 20,000 lbs.

KEEP your punch presses running steadily, at top speed, by using coil stock unreeled with LITTELL Ball-Bearing Automatic Centering Reels. They provide a free-flowing loop of stock and permit continuous feeding without waste.

Made in plain or motor-driven types for handling coils from 100 to 6,000 lbs. Equipped with the latest devices for feeding at desired speeds. Handle stock in various widths and thicknesses. Reel can be tilted at any angle. Adjustable in height. Vertical or horizontal operation. Coil Cradles can be provided for handling stock up to 20,000 lbs.

Besides Reels, LITTELL makes a complete line of press-room equipment, including—Roll Feeds, Feeding and Straightening Machines, and such essential safety devices as Pres-Vac Safety Feeders and Air-Blast Valves. Leading war-production plants use LITTELL.

ASK FOR BULLETIN

F.J. LITTELL MACHINE CO.

4161 RAVENSWOOD AVE., CHICAGO, ILL.

▲ Mention Item NED-2258 when writing ▲

PHOTOELECTRIC CONTROLS

Particularly applicable to industrial processes, series 70 photoelectric controls have operating speed up to 10 cycles per second. Standard contact capacity is 3 amperes, non-inductive load, but Microswitch can be supplied for loads of up to 10 amperes. Housing is of 16-gage drawn steel, finished in gray wrinkle. Series 18 light sources are supplied without transformer for operation on control current and with transformer for operation on 110-volt alternating current circuit. Lens focal lengths of 2, 4 and 6 inches are available. Made by **United Cinephone Corp.**, Dept. 1-4, Torrington, Conn.

▲ Mention Item NED-2259 when writing ▲

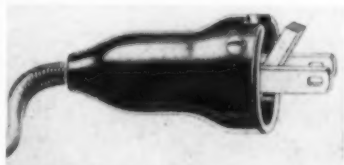
JACKET FOR FRAGILE PARTS

Designed to protect highly finished and fragile parts in process, during transit through factories and packing for shipment, protective jacket known as Metex Protective Boot will conform and cling to contour of parts. It is made with outside sleeve of composite steel and cotton mesh with interlining of all cotton mesh. Parts are protected from metal-to-metal contact; oil film is retained and dust or foreign matter which cause scratches are excluded.

For factory use, boots can be used over again. They are available custom-made in all diameters and lengths. Made by **Metal Textile Corp.**, 2 Central Ave., Orange, N. J.

▲ Mention Item NED-2260 when writing ▲

CIRCUIT BREAKER PLUG



Of improved design, this Hopax circuit breaker plug replaces conventional receptacle plug and at same time provides protection against over-load, danger from motor stall caused by low voltage and protects fluorescent lighting units against short circuits or grounds. Each piece of electrical equipment is protected as plug becomes part of circuit. Unit automatically disconnects faulty piece of equipment from supply line.

Small lever breaks connection and unit may be reset by lowering this lever. Plug is actuated by heat, thus providing time delay feature. Plug is approved by Underwriters' Laboratories Inc. It is available in from 2 to 10 ampere ratings. Made by **Hopax Industries, Inc.**, Dept. A, 1 N. LaSalle St., Chicago, Ill.

▲ Mention Item NED-2261 when writing ▲

ONE PLANT *Saved* **50%**

. . . ON EQUIPMENT COST ALONE . . . Through "WELD-BILT" ENGINEERING KNOWLEDGE

This saving is typical of "Weld-Bilt" results in Materials Handling Engineering

We'll be glad to survey YOUR Materials Handling needs, show you whether standard equipment can be adapted, or whether redesigned or custom-engineered equipment will move your materials faster, and at a saving in cost. USE this complete service to your profit!

Call on "Weld-Bilt" FIRST!

*** "Weld-Bilt" Hydraulic Lift Truck, with HORIZONTALLY Mounted Hydraulic Unit. Built for easier mobility and longer service. Capacities to 10,000 lbs.**

WEST BEND EQUIPMENT CORPORATION

Materials Handling Engineers

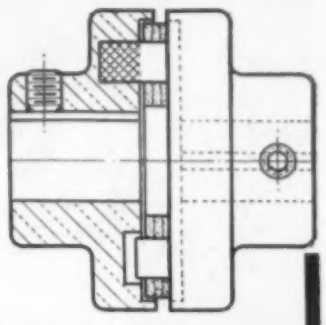
220 S. Water Street • West Bend, Wisconsin

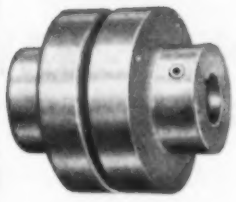
Manufacturers of Portable Electric Elevators, Two-Wheel and Four-Wheel Trucks, Skid Platforms, Barrel Racks, Tiering Machines, and special equipment.

▲ Mention Item NED-2262 when writing ▲

★ ★ ★ ★ ★ ★ ★

DIE-CAST *Flexible* COUPLINGS





Precision bored—Individually packed—No extra charge for combination of stock bores.

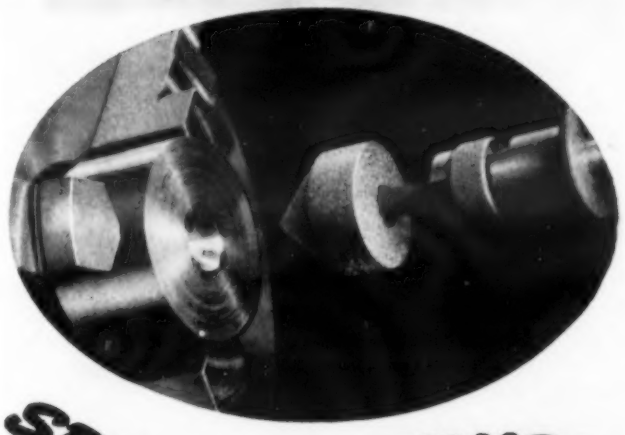
Dependable, low cost couplings for the lighter duty, constant speed application. A complete assortment of sizes and specifications ready for immediate shipment from stock.

Write us for our latest instructive catalog with recommendations for your specific requirements.

BROWNING MANUFACTURING CO., Inc.

Maysville, Kentucky

▲ Mention Item NED-2263 when writing ▲



SPEED the FINISH

• Wherever you find a Chicago Mounted Wheel at work, you'll find 100% grinding speed and efficiency.

Mounted firmly on its own steel shank, each wheel is a whirling point of easily controlled power that cuts valuable man hours.

Jobs are completed so speedily that bottlenecks due to slow finishing of vitally needed parts are removed. Work is so smooth that rejections are practically nil.

Available in 300 shapes and sizes — every grade and grain — a best wheel for every job.

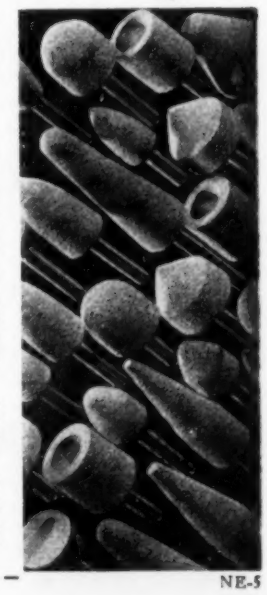
AMERICA'S HEADQUARTERS FOR MOUNTED WHEELS SMALL GRINDING WHEELS

TEST WHEEL FREE— Tell us kind of job, type grinder you use and size wheel you'd like and we'll send one postpaid for you to try.

PROMPT DELIVERY

With W P B approval and endorsement, we stopped making all wheels larger than 3" in diameter. By specializing* on Mounted Points and Grinding Wheels 3" and under in diameter, 24 hours a day, we have stepped up production and are keeping up with demand. Our central location is another big advantage—no time is lost between our production line and yours.

NEW CATALOG — Shows Chicago Mounted Wheels in actual colors, also portable electric tools and time-saving accessories.



CHICAGO WHEEL & MFG. CO.

1101 W. Monroe St. Dept. NE Chicago, Ill.

*Half a century of specialization has established our reputation as the small wheel people of the abrasive industry.

NE-5

☐ Send Mounted Wheel Catalog

☐ Free Wheel. Size.....

☐ Also interested in Grinding Wheels.

Name .....

Address .....

▲ Mention Item NED-2264 when writing ▲

▲ Mention Item NED-2265 when writing ▲

HOW TO IMPROVE
EMPLOYEE RELATIONS

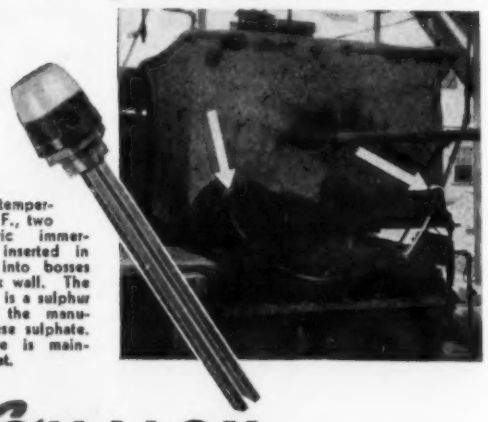
IN this nationally known radio manufacturing plant Logan Conveyor lines improve employee relations by eliminating all tiresome, energy-consuming lifting operations. Work flows automatically beneath the hands of operators, conserving energy and increasing productiveness. Your nearest Logan engineer can assist you in developing the proper conveyor installation to help your employees get out the maximum amount of war work with a minimum of effort. Logan Co., 215 Cabel Street, Louisville, Kentucky.

Write now for book "THE KEY"

Logan Conveyors

▲ Mention Item NED-2266 when writing ▲

Safe, simple ELECTRIC HEAT for an oil jacketed device



To keep oil at a temperature of 265 deg. F., two Chromalox electric immersion heaters are inserted in the oil, screwed into bosses welded to the tank wall. The device in this case is a sulphur burner, used for the manufacture of manganese sulphate. Correct temperature is maintained by thermostat.

CHROMALOX Electric
IMMERSION UNITS

are widely used in jacketed process equipment. They provide practically any desired temperature . . . are very easily applied . . . require only a simple wiring job instead of a complicated piping problem . . . apply heat only where it is needed, with no waste . . . maintain desired temperature automatically. Supplied with sheaths for immersion in all liquids.

Bring us your process heat problem. Pencil sketch and short description of conditions will secure the cooperation of our engineers, veterans at solving problems like yours. Write for the Chromalox Catalog of Electric Heat, with application data.

EDWIN L. WIEGAND COMPANY
7509 Thomas Blvd. Pittsburgh, Pa.

▲ Mention Item NED-2267 when writing ▲

NON-SKID SHIPPING PLATE

Designed to prevent skidding, slipping or shifting of large crated shipments in railroad cars, trucks or ships, this Anti-Skid Plate is placed between crate and floor of carrier. Weight of crate forces upset teeth into wood above and floor below, securely anchoring shipment against movement from normal causes. Device may also be used for stacking crated products in warehouses. It adds to stability of high stacks. Plate is made of heavy gage metal, with alternate punched holes having sharp burrs which hold firmly against horizontal thrusts. Made by **Northern Metal Products Co.**, 3304 W. Lake St., Chicago, Ill.

▲ Mention Item NED-2268 when writing ▲

PLASTIC COVERED ROLLS

Suitable for use as guide rolls, idlers and conveyor rolls where exposed steel and iron is objectionable, but where hard smooth surface is desired, plastic covered rolls are of Shaf-tite construction. They are basically all metal rolls. Surface of roll body has plastic covering which provides hard, smooth, glass-like surface which manufacturer claims is unaffected by most acids and alkalies. It is easily cleaned and has high wear resistance. Roll illustrated is about 5½ inches in diameter. Made by **Rodney Hunt Machine Co.**, 73 Maple St., Orange, Mass.

▲ Mention Item NED-2269 when writing ▲

INDUSTRIAL LOCKERS

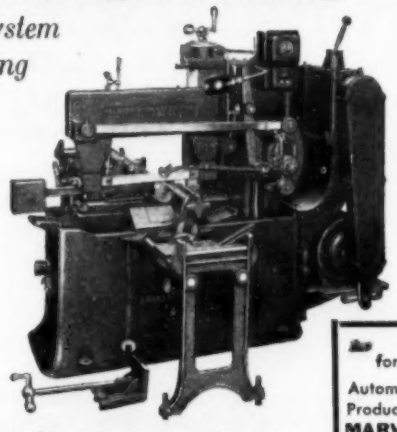
Assuring both privacy and protection for personal property, industrial locker compartments are made of pressed hard fiberboard. This material, which is moisture resistant, is reinforced and finished in olive green lacquer. Single tier, single front; double tier, single front; single tier, back-to-back, and double tier, back-to-back style assemblies are available.

Pilasters and compartment sides are factory assembled and complete units can be set up easily. Made by **The Sanymetal Products Co.**, 1719 Urbana Rd., Cleveland, O.

▲ Mention Item NED-2270 when writing ▲

MARVEL SAWS

A Complete System of Metal Sawing



The Marvel System of Metal Sawing provides the most complete line of sawing machines built, including: the most widely used small shop saws (80% are MARVELS); the fastest high speed hack saws built (automatics that will cut-off identical length from single or nested bars with no more operator attention than an automatic screw machine); the most versatile metal cutting-saw—(a universal metal cutting band saw). Giant Hydraulic hack saw that handles the largest and toughest bars and billets with ease; and the positively unbreakable MARVEL High-Speed-Edge Hack Saw Blades that permit any sawing machine to operate safely and continuously at full capacity.

for Automatic Production
MARVEL No. 6A Capacity, 6" x 6"
MARVEL No. 9A Capacity, 10" x 10"

ARMSTRONG-BLUM MFG. CO.
"The Hack Saw People"
5700 Bloomingdale Ave., Chicago, U. S. A.
Eastern Sales Office: 225 Lafayette St., New York

▲ Mention Item NED-2271 when writing ▲

SAFE-LINE
WIRE ROPE CLAMPS

Write for details of this—the only PERFECTED wire rope clamp on the market. Used by the Armed Forces and thousands of industries.

NATIONAL PRODUCTION COMPANY
4603 ST. JEAN AVENUE DETROIT, MICHIGAN

▲ Mention Item NED-2272 when writing ▲

6 MORE WAYS THESE AMAZING NEW STICKERS Speed Production

Applied without moistening — Never fall off — Yet easily peel off

1 GAR WOOD replaces scarce metals by using Kum-Kleen stickers to carry servicing data on its hoists.

2 BELL AIRCRAFT adheres Kum-Kleen stickers to airplane fuselages — replacing easy-to-lose progress sheets.

3 CROSLEY CORP. uses Kum-Kleen stickers on equipment to keep the complete maintenance record, showing dates and initials.

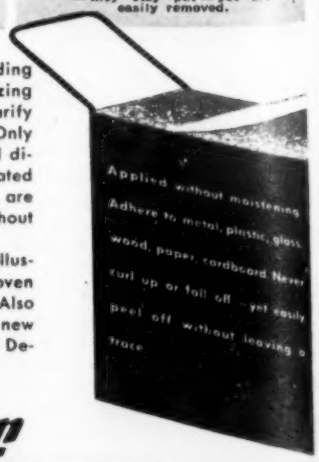
4 WAR PLANTS use Kum-Kleen Pre-Cut Masking stickers to speed small masking operations. They're cut to exact size required.

5 GRAYSON HEAT CONTROL places Kum-Kleen stickers on boxes and containers when deposits are required, assuring their return.

6 TENNESSEE EASTMAN applies Kum-Kleen Job and Inspection stickers to plastics — they stay put — yet are easily removed.

Profit by the experience of leading war plants and use these amazing new stickers to eliminate errors, clarify instructions, identify parts, etc. Only Kum-Kleen stickers can be applied directly to the part being fabricated because they adhere firmly—yet are easily removed like magic without leaving a trace.

Write for a complete catalog illustrating dozens of practical, proven methods of speeding production. Also send for samples of Kum-Kleen's new Pre-Cut Masking stickers. Address Department NED 5

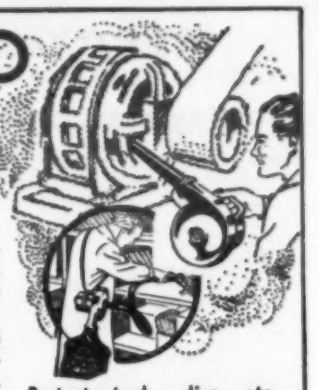


Kum-Kleen

AVERY ADHESIVES • 451 East Third St., Los Angeles, Calif.
In Canada: Enterprise Sales & Distributors, Toronto
NEW YORK • CHICAGO • PITTSBURGH • KANSAS CITY • BOSTON

▲ Mention Item NED-2273 when writing ▲

TORNADO settles your DUST problem

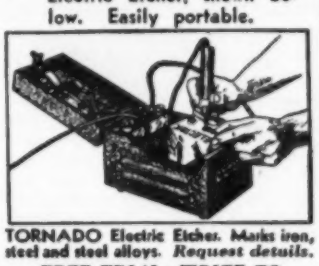


REDUCE replacements and repairs—protect essential operating equipment—increase efficiency—with the TORNADO Portable Electric Blower.

Blows clean, dry air, at 295 m. p. h. Cleans motors, generators and hard-to-reach places. Removes dust, dirt, lint, chips, etc. Costs less than 3c an hour to operate. Reduces damage to motors and bearings. Lessens fire and health hazards.

1 H. P. G. E. universal motor. Light weight. Portable anywhere. Plugs in at convenient outlets. Adaptable for spraying paint and insecticide. Convertible into powerful industrial vacuum cleaner, for cleaning walls, floors, ceilings, etc.

Protect tools, dies, etc. against loss or theft. Mark them with the TORNADO Electric Etcher, shown below. Easily portable.



TORNADO Electric Etcher. Marks iron, steel and steel alloys. *Request details.*

FREE TRIAL—WRITE TO

BREUER ELECTRIC MFG. CO.
5106 N. RAVENSWOOD AVE., CHICAGO

TAKE THE DUST OUT OF DUSTRY

with BREUER'S BALL BEARING

TORNADO

PORTABLE ELECTRIC BLOWER

▲ Mention Item NED-2274 when writing ▲

TURBO TYPE BLOWER

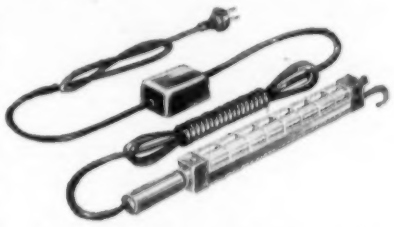
Delivering up to 315 cubic feet of free air per minute when driven by ⅛-horsepower motor at 9250 revolutions per minute, this No. 3 blower has high impact type plastic housing and turbo type wheel. Lesser air deliveries at various static pressures can be obtained at other speeds and with smaller motors.

Weighing only 12 ounces, unit will operate in temperatures up to 110 degrees Cent. Other asbestos base materials are available for higher temperatures. Turbo wheel is zinc plated and mounted on ¼ or 5/16-inch shaft. Made by **L-R Mfg. Co.**, Blower Div., Dept. 7B, Torrington, Conn.

▲ Mention Item NED-2276 when writing ▲

FLUORESCENT UNIT

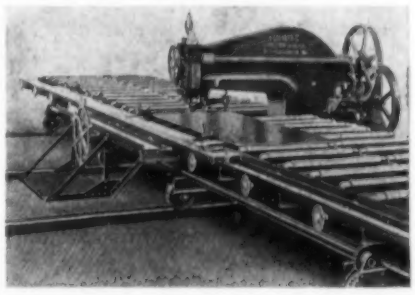
Designed for illuminating unusually small or relatively inaccessible spaces, this midget fluorescent lighting unit is equipped with 6-watt lamp. It is furnished with hook for convenience in hanging. Square shape prevents rolling when placed on flat surface.



It is equipped with manual starting switch. Special ballast is wired in 12-foot cord. Unit is available with low power factor ballast for 60-cycle, 110-volt alternating current operation. Lamp may be replaced by removing one screw and sliding guard forward so as to lift out. Made by **Day-Brite Lighting, Inc.**, 5428 Bulwer Ave., St. Louis, Mo.

▲ Mention Item NED-2277 when writing ▲

PLATE PUNCH AND TABLE

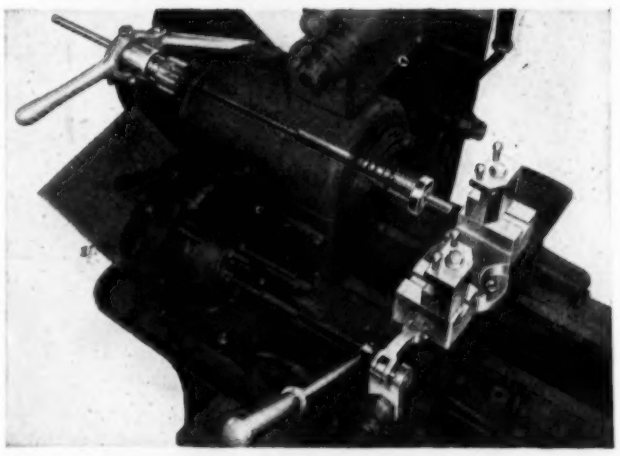


Developed for punching ship, tank, boiler, car and other types of plates, this precision plate punch and table provides positive control, one-man operation, accurate positioning and will handle rectangular or odd shapes. Standard type punch is equipped with floating punch and electrically controlled clutch.

Steel table consists of roller carrying frame which supports plate to be punched. Plate is attached to table by means of quick-acting clamps. Table is supported on track wheels set at floor level. Positioning is controlled by means of conveniently located handwheels. Made by **Thomas Machine Mfg. Co.**, Butler Rd., Pittsburgh, Pa.

▲ Mention Item NED-2278 when writing ▲

Multiply Lathe Production



With Quick-Closing Collet and Cross Slide

Kessler Aero Quick-Closing Draw-in Collet Attachment permits bar stock and tubing to be fed through the head stock without stopping the lathe, making a production screw machine out of your engine lathe.

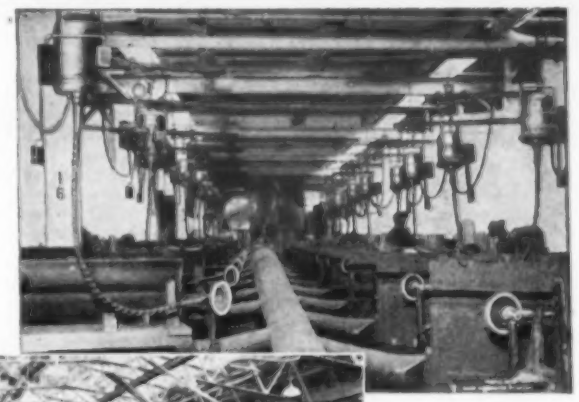
Kessler Aero Cross Slide is lever-operated for forming and fast cut-offs, eliminating slow turning of hand wheel. Fully adjustable. Both these attachments fit Atlas, Craftsman, South Bend and similar lathes of ¾" spindle capacity and are ready for immediate delivery.

Order direct or from your local supply dealer. Select territories open for established dealers and supply houses—write or wire for details.

Aero Collet Closer $65 Aero Cross Slide $42.50

KESSLER AERO PRODUCTS CO.
211 WEST PALM AVENUE • BURBANK, CALIFORNIA

▲ Mention Item NED-2279 when writing ▲



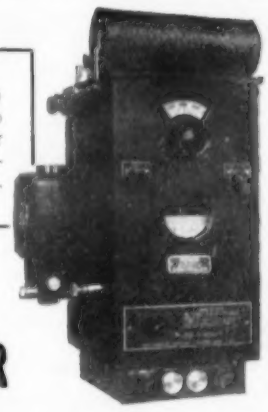
Jarvis POWER TOOLS

Hundreds of these Jarvis Propeller Sanding, Polishing and Buffing Machines are working around the clock. They speed the production of aircraft propellers in all the leading propeller plants of the Nation.

THE CHARLES L. JARVIS CO., MIDDLETOWN, CONN.
TAPPING ATTACHMENTS • FLEXIBLE SHAFT MACHINES • GROUND ROTARY FILES

▲ Mention Item NED-2280 when writing ▲

A unique group drive feature in the Foxboro Potentiometer Controller operates several instruments with single motor.



SURER, EASIER CONTROL for High Temperatures!

Foxboro Potentiometer Controllers are designed for utmost simplicity . . . to make precision operation easy . . . to cut wear and lost motion.

One typical advance is the unique Foxboro fixed slide-wire contact. It makes possible knife-edge detection and large trouble-proof parts. Another is the giant setting dial enabling quick, close setting. These are only two of many simplifications that insure high dependability. **The Foxboro Company, 134 Neponset Ave., Foxboro, Mass., U. S. A.** Branch offices in principal cities.

Availability of these instruments now temporarily restricted due to emergency war demands.

FOXBORO POTENTIOMETER CONTROLLERS

▲ Mention Item NED-2281 when writing ▲

Compare THE "NEW" AND "OLD" IN PLANT LIGHTING

300-WATT BIRDSEYE Reflector Lamp

Controls Light scientifically with its own built-in reflector.

Needs no Fixtures. Every Birdseye a complete luminaire lighting unit in itself.

Saves on Maintenance. Pure silver sealed-in reflector stays brilliant and never needs cleaning.

300-WATT OLDSTYLE Clear Bulb

Wastes Light by scattering rays when used bare.

Needs Reflectors or luminaires to control and focus light.

Costly to Maintain because reflectors need frequent cleaning.

BIRDSEYES deliver More Light to the "SEEING AREA"

CLARENCE BIRDSEYE was the first man to *do something* about the disadvantages of ordinary bulbs in industrial use. Birdseye saw light being wasted by dirty or inefficient bulb-and-reflector combinations. He noted the maintenance and cleaning necessary. And he knew that the *real answer* to better industrial lighting was a lamp *with its own perfect reflector* sealed inside the bulb itself.

Thus was inspired a new kind of lighting for industry—the Birdseye Reflector Lamp. Requiring no fixtures or maintenance . . . providing scientific illumination at the cost of bulbs alone . . . it has proved truly revolutionary in efficiency and economy.

The "Who's Who" of American industry have now adopted Birdseye Reflector Lamps after exhaustive tests in use. Leaders like Allis-Chalmers, Bliss & Laughlin, Curtiss-Wright, Delco-Remy, General Motors, Johns-Manville, Republic Steel, A. O. Smith, Vultee Aircraft, Willys-Overland—to name just a few—use Birdseyes to project more "light for seeing", full-force and without waste, to the work area. For complete information write for Booklet I-S.

BIRDSEYE *REFLECTOR LAMPS*

DIRECT CONCENTRATOR INTENSIFIER INDIRECT

There's a Birdseye Reflector Lamp for every industrial lighting purpose—providing scientific illumination at the cost of bulbs alone.

WABASH APPLIANCE CORPORATION
345 Carroll Street, Brooklyn, N. Y.
Mfrs. of Superlite Light Conditioning Bulbs and Wabash Superflash

▲ Mention Item NED-2275 when writing ▲

New Low-Cost SURFACE GRINDER

. . . with NEW FEATURES not found in Grinders costing many times as much

Improved, well-designed spindle—made extra long with bearing at either end, widely spaced. Forward bearing is large surface taper bronze bearing—rear bearing is sealed-for life ball bearing.

Special Wheel Mounting System—utilizes two-piece adapter so that either wheel, or wheel and adapter, can be removed.

Improved Table—smooth operating; has long ways so that table rides solidly. Gibs provided so that all play due to wear can be eliminated. Provided with T-slot for clamping fixtures or magnetic chuck in place.

SEND FOR CATALOG

giving full details and prices on the new Delta Surface Grinder. Get in touch with nearest Delta Industrial Distributor or send coupon below.

ARMY E NAVY

DELTA MILWAUKEE

THE DELTA MANUFACTURING CO.
616-E E. Vienna Ave., Milwaukee, Wis.

Gentlemen: Please send me your new catalog giving full details and prices on the Delta Surface Grinder, and your full line of low-cost machine tools.

Name .....
Address .....
City ..... State .....

▲ Mention Item NED-2282 when writing ▲

PREVENTING DECARBURIZATION OF STEELS

The principal factors that must be considered in any attempt to prevent the decarburization of steel are the steel analysis, temperature and time of heat treatment and the furnace atmosphere.

All of them are subject to modification, or control, as a means of prevention. But since changes in steel analysis, or in temperature and time of treatment are often impractical, the furnace atmosphere offers the best general point of attack.

If the furnaces in use are basically unsuitable, the best method of correcting the trouble is to replace them with controlled atmosphere furnaces carefully selected to meet individual requirements.

If this cannot be done, an analysis of the furnace atmospheres should be made to determine whether or not carbon dioxide or water vapor are present. If they are, one remedy consists of installing auxiliary equipment to eliminate the CO_2, and to reduce the H_2O to the lowest possible level.

There is another method that may work if light scale on treated parts is not objectionable. This consists in using a slightly oxidizing atmosphere (2-5%). Decarburization of certain high carbon and tool steels is virtually eliminated. The method is safe to try with steels that do not require temperatures over 1600° F.

MOLY
Climax Mo-lyb-den-um Company
500 Fifth Avenue · New York City

▲ Mention Item NED-2283 when writing ▲

Cross-section of Metex Coolant Strainer

NOW YOU CAN KEEP PRODUCTION WHEELS HUMMING...

24 Hours a Day — Week after Week
On all metal cutting machinery using a coolant flow

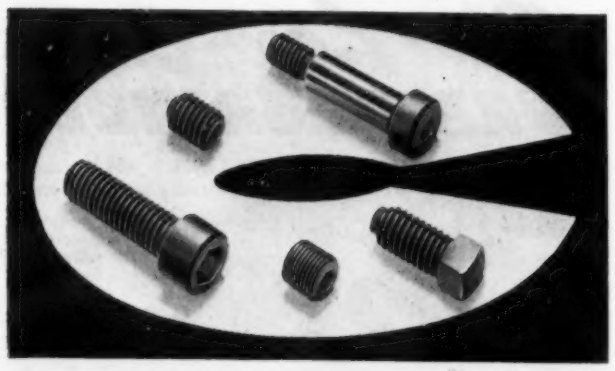
New Coolant Strainer Saves Production interruptions — Labor Costs — Damage to pump by metal cuttings.

Incessant pump cleaning, and shut-downs for replacing damaged gears, are now eliminated by installing a Metex Coolant Strainer*. This strainer, constructed of interstitially knitted and crimped mesh, excludes minutest particles of metal. Even on "dirty work" the Metex Coolant Strainer filters effectively for approximately a month, 24 hours a day. A new refill can then be installed in a minute. Metex Coolant Strainer saves your pump—saves your coolant—saves valuable hours of production.

*Reg. U. S. Pat. Off.

METAL TEXTILE CORPORATION
Dept. NE-3, 4 Central Ave. Orange, New Jersey

▲ Mention Item NED-2284 when writing ▲



CHICAGO Safety Plus PRODUCTS
Serving With Our Armed Forces!

They served in 1898 . . . They served in 1917 . . . and they were among the first to be enlisted in the present global war.

Today, The Chicago Screw Company products are performing an essential service in the war production program. These superior quality, precision-made screw products are being utilized in the construction and maintenance of fighting ships, planes, tanks, trucks and machinery for allied war needs.

We will be Victorious!—and our vast production facilities and our sales organization will again be devoted to serving the needs of a peaceful world.

★

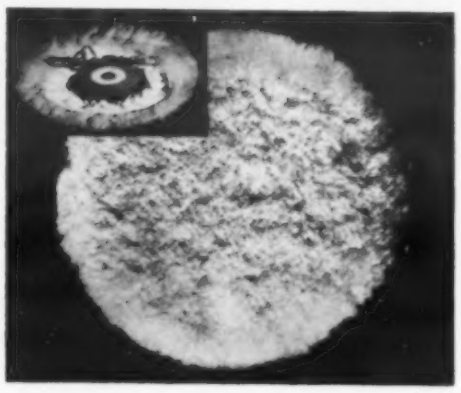
Order from your distributor!

★

THE CHICAGO SCREW CO.
ESTABLISHED 1872
1026 So. HOMAN AVENUE CHICAGO, ILL.

▲ Mention Item NED-2285 when writing ▲

POLISHING BONNET

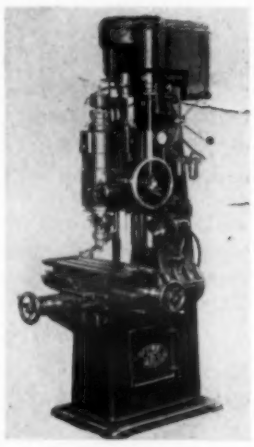


Recently improved in construction, this lambswool polishing bonnet is made of chrome tanned leather which may be used in conjunction with any power-driven disc type polisher for refinishing highly polished surfaces of all types. It molds to wheel of any shape or style, and permits getting into corners of assemblies or machines.

Bonnet is furnished with heavy canvass binding and drawstring for attaching to wheel. Center hole may be re-inforced with either canvas or fiber at slight additional cost. Available sizes include 7, 8, 9 and 10-inch diameters at prices ranging from $1.10 to $1.60 each. Made by **Handy Sales Mfg. Co.**, 316 Blackstone Bldg., 1426 W. Third St., Cleveland, Ohio.

▲ Mention Item NED-2286 when writing ▲

PRECISION JIG GRINDER



Accurately finish-grinding holes to size and location to meet die requirements for sheet metal stamping and other types of tool work, this precision jig grinder adds 25 to 100 per cent to life of dies by relocating and finishing holes after hardening. Smooth finish results and decarbonized surface of steel is removed.

Machine grinds straight or tapered holes within tolerance of 0.0001 inch in dies, drill jigs, master plates and precision gage parts. Tapered holes can be ground in either direction up to 1½ degrees on each side of vertical. (Complete description of this machine appeared on page 3, item NED-1200, of the March, 1943 issue. Through error, the illustration used was that of the precision jig boring machine. Editor.) Made by **Moore Special Tool Co.**, Bridgeport, Conn.

▲ Mention Item NED-2287 when writing ▲

DO YOU KNOW?

Two new 16-millimeter sound motion pictures, "Aluminum: Mine to Metal" and "Aluminum: Fabricating Processes," will facilitate training of war workers and technical personnel of the armed forces. No charge is made for use of films, but exhibitor pays for transportation and loss or damage other than normal wear. Applications for films should be addressed to: Bureau of Mines Experiment Station, 4800 Forbes St., Pittsburgh, Pa.

▲ Mention Item NED-2288 when writing ▲

New!

FREE!

This folder describes the newest, most efficient "indoor transportation" of gears, engine parts, hot forgings for tanks and other military equipment, aircraft parts, cartridges, shells, bombs, etc. Send for it today!

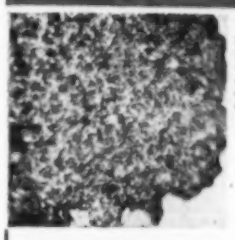
—if you are now producing war equipment or materials, write at once for this illustrated folder of A-F Conveyor installations. Or if you have a tough materials handling problem don't wait for this folder—write, wire or phone for help today.

The Alvey-Ferguson Co., 32 Disney St., Cincinnati, O.

CONVEYING MACHINERY A-F
ALVEY-FERGUSON
SCIENTIFICALLY PLANNED Conveyors

▲ Mention Item NED-2289 when writing ▲

ALLOY-SPRAYER
MELTS AND SPRAYS LOW FUSING ALLOYS (UP TO 900°F)



Photomicrograph of bond between Galv-Weld and steel (light-area) as applied by the Alloy-Sprayer shows the mechanical bond possible by means of sprayed metal.

Spraying a protective coating of Galv-Weld metal by means of an Alloy-Sprayer on the welded joint of a galvanized assembly is fast, inexpensive, requires no specially trained help and eliminates the necessity for regalvanizing the entire structure.

Portable, self-contained Alloy-Sprayer melts and sprays almost any low temperature alloy. For PROTECTIVE COATING: Cutting Tools, Wood Patterns, Foundry Molds. Regalvanizes or patches weld-burned areas. For ELECTRICAL: Tinning Carbon Brushes, Porcelain Ceramics, Fuse Materials, Glass Surfaces. For PETROLEUM: Lead Coating Piping Joints subjected to corrosive action.

Alloy-Sprayer Co. 2060 Book Bldg. DETROIT, MICH.

▲ Mention Item NED-2290 when writing ▲

To get FASTER more ACCURATE TENSION TIGHTENING...

. . use MOSSBERG TORQUE TOOLS!

BECAUSE they're made in 4 calibration ranges, dial graduations on Mossberg Torque Tools are larger, more widely spaced. Aircraft assemblymen can read 'em easier . . . measure nut and bolt tensions faster, *more accurately!*

EXAMINE the improved dial mounting and you'll see another reason why Mossberg Torque Tools control tensions more accurately. This rigid mounting protects dials from bumps that might knock them out of adjustment.

WIDELY USED by the U.S. Navy, by many leading aircraft makers, Mossberg Torque Tools have *proved* 98% accurate under most severe conditions. Write for complete information on sizes and prices!

APCO MOSSBERG COMPANY
161 Lamb Street, Attleboro, Mass., U. S. A.

▲ Mention Item NED-2291 when writing ▲

PAGE
STAINLESS STEEL
WIRE

Stainless Steel certainly is still on the critical list—not too plentiful even for specific uses in war production and by the armed forces.

So, today, you find PAGE Stainless Steel Wire in such things as rifle springs; as binding wire for armatures, because of its non-magnetic properties; as the wire for the corrosion-resisting controls of aircraft; as Lock wire; Safety wire, and for corrosion-resisting cotter pins. But, if you plan to use Stainless Steel Wire after the war, discuss your ideas with PAGE!

PAGE STEEL AND WIRE DIVISION
Monessen, Pa., Atlanta, Chicago, New York, Pittsburgh, San Francisco, Portland

AMERICAN CHAIN & CABLE COMPANY, Inc.
BRIDGEPORT • CONNECTICUT

▲ Mention Item NED-2292 when writing ▲

"Seventy BELOW"

IS TOUGH ON HOSE LINES

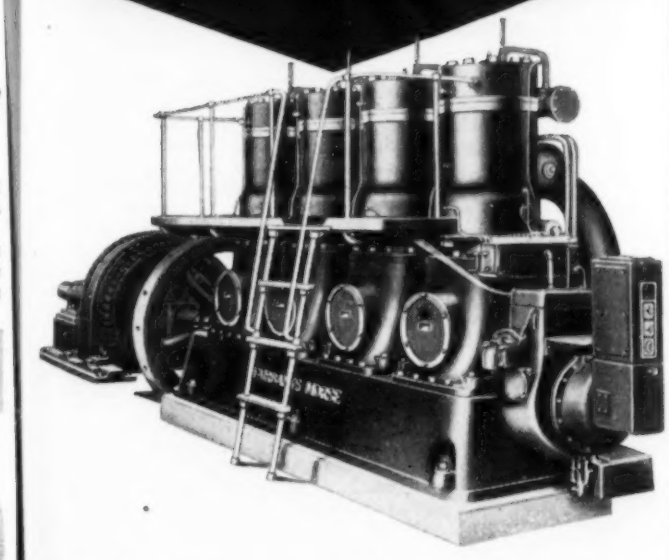
Aeroquip solves low-temperature hydraulic line operation. Lab researched to —70° F. Proved under Artic combat uses. *Detachable* fittings instantly re-usable with new Aeroquip hose. Simplifies size and length combinations.

SPECIFY AEROQUIP HOSE LINES with DETACHABLE, RE-USABLE FITTINGS

AEROQUIP CORPORATION
JACKSON, MICHIGAN, U. S. A.

▲ Mention Item NED-2293 when writing ▲

Who's BOSS at Your Plant?



● You are—of course—as long as the power supply doesn't let you down.

Many manufacturers throughout the country have forestalled this possibility by generating, and thus controlling, their own power with Fairbanks-Morse Diesels.

Designed to operate with minimum fuel and maintenance cost in *sustained* service, F-M 2-cycle, slow-speed Diesels provide dependable power when dependability is of primary consideration—and low cost power at all times.

Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago. Branches and service stations throughout the United States and Canada.

FAIRBANKS-MORSE Diesels

DIESEL ENGINES · PUMPS · MOTORS · GENERATORS · SCALES · WATER SYSTEMS · FARM EQUIPMENT · STOKERS · AIR CONDITIONERS · RAILROAD EQUIPMENT

▲ Mention Item NED-2294 when writing ▲

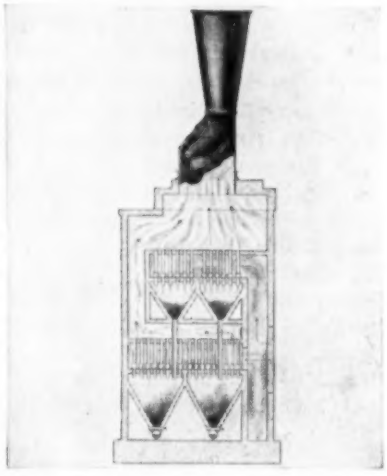
RIVETING BUCKER

One woman operator, through use of this Automatic Bucker, can perform work that would otherwise require two workmen in riveting aircraft and other sheet metal assemblies. Device may be used with any standard rivet gun and can be furnished with specially designed heads for any type of airplane construction. Rivets are driven instantly, in perfect alignment and in minimum of time.

Tool with 22-inch throat weighs 14 pounds and with 36-inch throat, 16 pounds, including gun. Parallel yokes provide for side panels, wings and leading edges. Special yokes will handle engine cowling and other parts requiring extra clearance. On horizontal structures, rivets can be preloaded. On vertical structures, rivets can be inserted in usual manner or they can be preloaded and taped. Made by **Aero Tool Co.**, 233 W. Olive St., Burbank, Calif.

▲ Mention Item NED-2295 when writing ▲

CERAMIC DUST COLLECTORS



Constructed on same design as were steel tubes previously used, tubes of fire clay in Thermix ceramic tubular dust collectors are mounted in concrete or brick casing above concrete bins, entirely eliminating use of steel. Ceramic tubes are sufficiently thick and rugged to be proof against fracture and breakage from normal handling or from changes in temperature, yet weigh no more than steel tubes. Concerns who have been unable to obtain preference ratings which would enable them to install dust collector built of steel will now be able to obtain prompt delivery of this new apparatus made of non-critical materials, it is claimed. Made by **Prat-Daniel Corp.**, 80 S. Water St., Port Chester, N. Y.

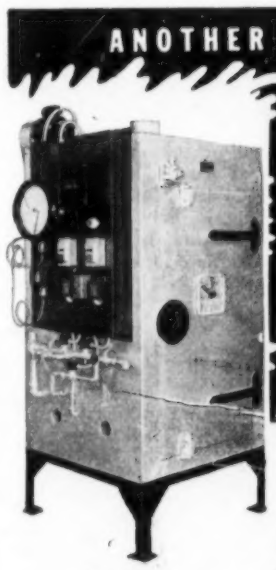
▲ Mention Item NED-2296 when writing ▲

DO YOU KNOW?

Known as Spiral-4, a new communications system provides three telephone and four telegraph circuits over a single rubber-covered cable about the thickness of a fat lead pencil. Cable consists of four spiralling wires and is made in quarter-mile lengths, ends of which are fitted with weatherproof connectors. Carrier currents are used for message transmission. Developed for armed forces by Western Electric Co., 195 Broadway, New York City.

▲ Mention Item NED-2297 when writing ▲

ANOTHER KOCH OVEN DELIVERED IN RECORD TIME!



Fitted with special safety controls, a 24-hour temperature recording control, and an automatic high-temperature limit switch this KOCH Cabinet Oven was shipped just a few weeks after it was ordered!

Here's the secret of this amazingly fast delivery. Using standardized units KOCH can assemble any size oven you need. Then it is equipped to meet your specific requirements . . . pre-tested . . . and shipped ready for quick, easy installation.

Today . . . KOCH Ovens are giving dependable service in capacities such as core-baking, heat-treating, testing and finish baking. This is proof of their wide adaptability and high efficiency.

For prices and complete information . . .
PHONE, WIRE OR WRITE TODAY!

GEORGE KOCH SONS, INC.
MAKERS OF *Industrial Equipment*
EVANSVILLE, INDIANA

▲ Mention Item NED-2298 when writing ▲

NO SHORTAGE AND One OUTLASTS 400 DRY CELLS

Dry cells Drastically Restricted—and flashlights more important than ever. Don't worry; use IDEAL *Rechargeable* Flashlight Storage Batteries and never run out of batteries!

IDEAL RECHARGEABLE Flashlight STORAGE BATTERIES

One IDEAL *Rechargeable* Storage Battery can outlast 400 dry cells—and give better, brighter, steadier, more dependable light. Your flashlight dry cells get steadily weaker, until they must be thrown away. But you *recharge* the IDEAL Storage Battery again and again, restoring your battery and your bright light. Charger plugs into any light socket.

Conserve Critical Materials. In IDEAL *Rechargeable* Storage Batteries, 5½ oz. of lead can replace approximately 68 lbs. of carbon, zinc and other vital materials used in 400 dry cells.

Reduce Flashlight Battery Costs as much as 75%. Equal in size to two 1¼ inch size D dry cells. GUARANTEED. Thousands in Use! Prompt Deliveries.

Write for Bulletin FBB 1242.

IDEAL COMMUTATOR DRESSER CO
1032 Park Avenue · Sycamore, Illinois
Sales Offices in all Principal Cities

▲ Mention Item NED-2299 when writing ▲

WE'RE GIVING DEFENSE INDUSTRIES

A LIFT

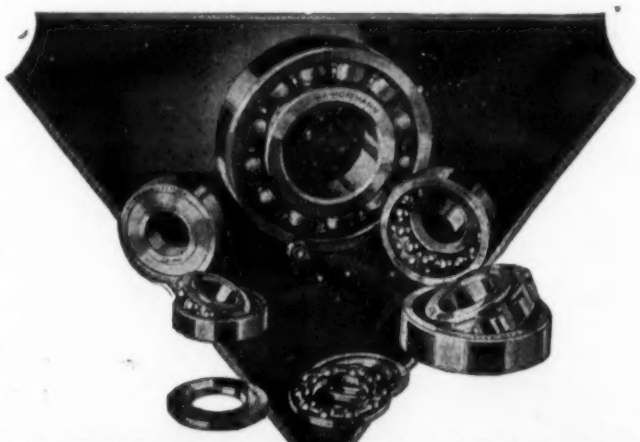
WITH THE NEW CM METEOR HEAVY-DUTY ELECTRIC HOIST

½ TON AND UP

The *New* Meteor is already piling up daily evidence of its ability to increase output. True balance streamlined design, aeroplane type cooling, helical gears and precision bearings give overworked departments a new *lift* when they adopt the fast, heavy-duty CM METEOR for handling materials. Fully illustrated engineering Catalog No. 142 sent on request. Write:

CHISHOLM-MOORE HOIST CORPORATION
(Division of Columbus-McKinnon Chain Corp.)
120 FREMONT AVE. · TONAWANDA, N. Y.
Branch Offices: NEW YORK · CHICAGO · CLEVELAND

▲ Mention Item NED-2300 when writing ▲



PRECISION BEARINGS in 108 Distinct Series

NORMA-HOFFMANN offers, to engineers and designers, the most comprehensive line of anti-friction bearings in America:—108 series—ball, roller, and thrust types—⅛" to 21" bore, metric and inch sizes—a PRECISION BEARING for every load, speed, and duty. Write for the latest Catalog. Let our engineers work with you.

NORMA-HOFFMANN BEARINGS CORP'N.
STAMFORD, CONN., U. S. A.

"NORMA-HOFFMANN" PRECISION BEARINGS
BALL · ROLLER · THRUST

▲ Mention Item NED-2301 when writing ▲

NOT EVEN A WHISPER OF DUST

Gets into your lungs when you're protected with—

DUPOR No. 24 U.S.B.M. approved for Type A Dust (as worn by the snappy war worker with the lunch bucket). Sample $2.50 postpaid.

DUPOR No. 1 Miniature Mask for nuisance dusts (worn by the gossipy gal up front). Weight only 1 ounce—sample $1.00 postpaid.

DUPOR No. 40 U.S.B.M. approved for Type A Dust (worn by the "lady's man"). Over 40 sq. in. of filtration area. Sample $2.50 postpaid.

H. S. COVER, Chippewa St., South Bend, Ind.

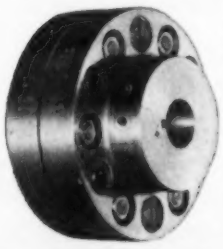
▲ Mention Item NED-2302 when writing ▲

Try to hold two pencils in perfect end-to-end alignment without touching each other, while you count ten!

Even if you brace your hands, wrists or arms as solidly as you can, you will quickly see why Ajax FLEXIBLE Couplings are essential to protect direct-connected machines from unavoidable misalignment.

Remember, too, that you are making this test with pencils weighing only an ounce or two . . . instead of costly machines driven twenty-four hours a day at high speeds by plenty of horsepower!

Manufacturing executives, design engineers, plant superintendents, and maintenance men are invited to write for the Inside Story of Ajax Flexible Couplings.



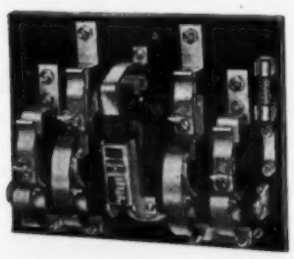
AJAX
FLEXIBLE COUPLING CO.
Incorporated 1920
WESTFIELD, N. Y.

▲ Mention Item NED-2303 when writing ▲

Get ALL FACTS about

INSTANTANEOUS
transfer from normal to emergency service by the
NEW *Improved* ZENITH Automatic Transfer Switch

For use where *continuous* lighting is absolutely necessary. Electrically held. All contacts on one shaft. Simple. Positive. Transfer in 1/25 sec. No "off" position possible. A.C. to A.C., A.C. to D.C. Any combination 1, 2, 3, 4-pole types, 18 capacities, 30 to 400 amps. Also made in electrically operated-mechanically held type. PROMPT DELIVERY.



Send for New Zenith Catalog

Magnetic contactors, remote control, and automatic time switches, reset, interval, and process timers, program clocks. *Control equipment for special jobs.* Write

ZENITH ELECTRIC CO.
156 West Walton Street Chicago, Illinois

▲ Mention Item NED-2304 when writing ▲

GLOSS MEASUREMENT

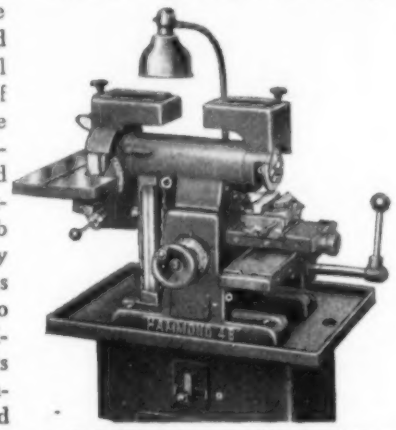
Designed to register changes in specular gloss of surfaces resulting from age, wear, abrasion, exposure to moisture, heat, light, vapors, or sprays, photoelectric Glossmeter consists of instrument proper and search unit which is connected to it by flexible cable. Search unit is first placed on black glass for standardization. Then, search unit is placed on sample after which needle indicates gloss directly in terms of ideal mirror as 1000. Samples can be of any size and may be measured in rapid succession.

Instrument is self-contained and built into portable housing with cover and carrying strap. It is furnished with search unit for 60 degrees gloss. Search units for 45 and 75 degrees gloss are also available. Instrument is supplied in two models, Model 650 is operated by dry-cell batteries which are housed in casing. Model 660 is built for operation from power line or for operation from storage battery. Made by **Photovolt Corp.**, Dept. OFE, 95 Madison Ave., New York City.

▲ Mention Item NED-2305 when writing ▲

CARBIDE TOOL GRINDER

Exceptionally smooth operation is obtained with this Model 4-B combination chip breaker and cup wheel carbide tool grinder through use of V-belt drive. Precision tool settings and accurate groove grinding are obtained with diamond wheel on chip breaker side of machine. Universal vise is of double cradle design and any desired setting can be instantly locked with thumb levers. Vise is fed by handwheel on cross slide calibrated to 0.001 inch. Longitudinal slide permits vise to move horizontally, being reciprocated by adjustable hand lever. Ball bearing spindle is driven through multiple V-belt by ½ horsepower single phase motor. Silicon carbide cup wheel is used for tool maintenance grinding. This side of machine has 8 by 14 inch tilting table which is adjustable to any angle between 25 degrees below and 15 degrees above horizontal. Made by **Hammond Machinery Builders, Inc.**, 1623 Douglas Ave., Kalamazoo, Mich.



▲ Mention Item NED-2306 when writing ▲

DO YOU KNOW?

Accumulated experience in development and manufacture of railroad pneumatic controls is being made available to general industrial field. Remote pneumatic control systems are being adapted for such applications as ships, earth moving equipment, mining and machine tools. Systems developed by Westinghouse Air Brake Co., Wilmerding, Pa.

▲ Mention Item NED-2307 when writing ▲

"STURDY" ALL WOOD STOOLS
from stock

These hardwood stools, supplied with or without backs as required, are available in three sizes—24 in., 26 in. and 30 in. (backless only), have a 14½ in. seat, 1 in. thick, with 1⅛ in. dia. legs and ¾ in. dia. rungs. Well finished and varnished. Immediate shipments from stocks on low priorities.

ALL-STEEL SHOVEL TRUCK

- Reduces Handling Costs
- Increases Shop Safety
- Lasts A Lifetime
- Costs Only A Few Dollars

500 POUND CAPACITY

Works like a shovel—sharpened platform is pushed under load—iron wheels with Hyatt roller bearings—load cannot rub wheels—takes small space when not in use, and cannot be tipped over. Special design for handling kegs and small loads.

Write today for complete information and literature . . . and for free trial offer on the All-Steel Shovel Truck.

Thousands in Use

FISHER EQUIPMENT CO.
6315 ELLSWORTH AVE. DETROIT, MICH.

▲ Mention Item NED-2308 when writing ▲

THE ARMY BEHIND THE DEFENSE PROGRAM

PRECISION
The Password for Thermometers acceptable to Government Inspectors.

SOCKETS:
For Industrial Thermometers
For Dial Thermometers
For Recording Thermometers
For Laboratory Test Thermometers

All are made to split-hair precision for extreme accuracy and rapid registration of temperature. To pass Government inspection, thermometers and sockets must be made right and sluggish instruments have no place in the Nation's Defense.

INDUSTRY, serving the Nation's needs, requires the same precision and accuracy. You will find Palmer thermometers to fill this requirement perfectly.

Write for Catalog No. 300-D

THE PALMER CO.
Mfgr. Industrial, Laboratory, Dial and Recording Thermometers
2523 NORWOOD AVE., CINCINNATI, NORWOOD, OHIO
Canadian Plant: King & George Sts., Toronto

▲ Mention Item NED-2309 when writing ▲

"VINYLITE" ELASTIC PLASTICS
Meet Today's Critical Needs

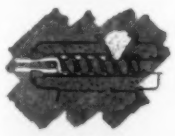
—ADAPTABLE TO ESTABLISHED FABRICATING METHODS.
—OFFER AN UNUSUAL COMBINATION OF PROPERTIES.

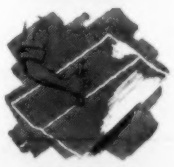
CALENDER COATING

SPREADER COATING

COMPRESSION MOLDING

INJECTION MOLDING


EXTRUDING


CEMENTING

Flexible and stretchable like rubber, yet far superior in many respects, VINYLITE Elastic Plastics have attained front-rank importance in war production because they can be fabricated in a wide variety of ways. Using established processing methods, they require few, if any, changes in existing equipment or techniques.

Textile Coatings, up to 0.030 inches thick, on clothing and paulins, can be applied by calender mills used for rubber. When dissolved in suitable solvents, VINYLITE Resins also can be applied to cloth on standard spreader-coating equipment. These coatings are not only waterproof, but are odorless, non-oxidizing, and do not deteriorate upon aging. They do not become sticky or brittle under extreme climatic conditions.

Molded Products of VINYLITE Elastic Plastics, such as grommets and terminal insulators can be injection molded—a high-speed process made possible by the thermoplastic nature of the material. When required, compression molding can also be used. In both instances, trim and flash can be remolded without further processing.

Extruded Tubes and Rods, and insulation coverings for wires and cables are readily formed from VINYLITE Elastic Plastics in standard types of plastic extruders. Such products are tough and abrasion-resistant, non-flammable, and inert to moisture, and most chemicals. Unlike rubber, these plastics are available in transparent, colorless, and colored effects.

Flexible Sheeting and Film, in continuous rolls ranging from 0.004 to 0.085 inches in thickness, can be fabricated into finished products either by cementing, sewing, or heat-sealing. Formulations range from semirigid materials to soft, rubbery types with an elongation of over 300 per cent.

Full particulars on VINYLITE Elastic Plastics for essential applications can be obtained by writing to Department 8.

Plastics Division
CARBIDE AND CARBON CHEMICALS CORPORATION
Unit of Union Carbide and Carbon Corporation
UCC
30 EAST 42ND STREET, NEW YORK, N. Y.

Vinylite
TRADE MARK

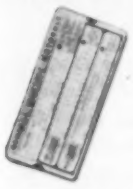
ELASTIC PLASTICS . RIGID PLASTICS
RESINS FOR ADHESIVES
RESINS FOR SURFACE COATINGS

The word 'Vinylite' is a registered trade-mark of Carbide and Carbon Chemicals Corporation

▲ Mention Item NED-2310 when writing ▲

HERE'S HELP
ON PREVENTIVE MOTOR CARE

Oiling, cleaning, and inspection are half the battle in keeping motors fit. Our booklet, "How to Care for Motors," tells what to do and when to do it, simplifies instruction of maintenance crews. Ask for GEA-2856A.



To meet WPB requirements, the horsepower required on every job must be accurately known. For metal-cutting operations, the G-E MOTORULE helps you find the answer quickly. Saves guesswork, saves motor horsepower. Ask for GEL-763.

G-E MOTOR RECORD CARDS make it easy to keep an accurate, running record of the specifications and service history of every motor in your plant. Ask for GES-1526A.

For these FREE HELPS, see your G-E Representative or write General Electric, Schenectady, N. Y.

GENERAL ELECTRIC

▲ Mention Item NED-2311 when writing ▲

FEDERAL
PRECISION MEASURING INSTRUMENTS
Chicago · Cleveland · Detroit · Hartford · Los Angeles · Milwaukee · Montreal · Indianapolis
New York · Philadelphia · Pittsburgh · Rochester · San Francisco · St. Louis · Toledo · Toronto · Windsor

▲ Mention Item NED-2312 when writing ▲

STILL WORKING BY — *candlelight?*

Unthinkable, in this day and age, that any plant would use *candlelight*, with modern lighting available. Yet it's just like using candlelight to rely on inadequate communications, with *AMPLICALL* available. Today, large and small plants all over the land are effecting *tremendous savings of time* with *AMPLICALL* Intercommunication and Paging Systems. Find out how completely *AMPLICALL* can serve you.

At left: Control unit of the Rauland AMPLICALL Sound System

Electroneering is our business

Rauland

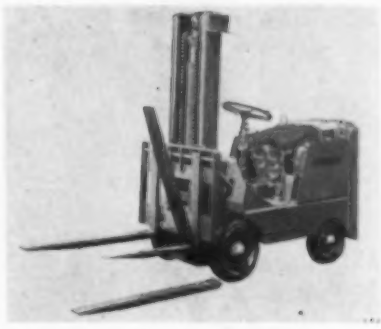
Buy War Bonds and Stamps

RADIO...SOUND...COMMUNICATIONS

The Rauland Corporation...Chicago, Illinois

▲ Mention Item NED-2313 when writing ▲

LIFT TRUCK FORK EXTENSIONS



Loads of widely varying dimensions can be handled on lift trucks with standard length forks through use of these fork extension adaptors. Quickly and easily attached, adaptors make it possible to extend fork lengths safely as much as 24 inches. Skids or pallets of practically any reasonable size can be accommodated efficiently.

Adaptors are attached to truck forks, as shown. They are held vertically and eye at bottom of each is inserted over fork. Adaptor is slid back to bend of fork and lowered into position. It locks automatically to prevent sliding and side flanges prevent sideway slipping. Made by **Towmotor Corp.**, 1219 E. 152nd St., Cleveland, Ohio.

▲ Mention Item NED-2314 when writing ▲

INSPECTION MIRROR

Adjustable to practically any required angle, this Blue-Point See-Eee-Zee Mirrorview makes it possible to inspect portions of work which are inaccessible to normal vision. Locking device, operated by one hand, permits locking mirror in any position within 90 degree arc.

Mirror surface is free from distortion and replacements are easily inserted into holder. Tool may be inserted past obstructions and set to desired angle to afford full view. Two sizes are available. Made by **Snap-on Tools Corp.**, Dept. NED, Kenosha, Wis.

▲ Mention Item NED-2315 when writing ▲

RADII AND ANGLE DRESSER

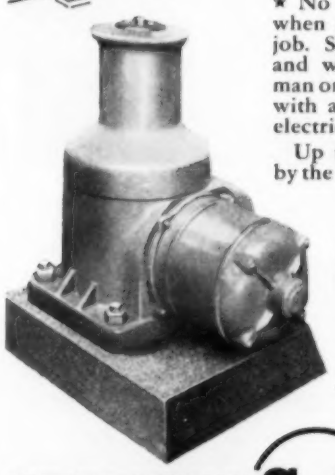
Capable of producing practically any required face on precision grinding wheels, this radii and angle diamond dresser is extremely accurate. It is simple to operate and only single setting is required to produce one angle, two angles, concave radii up to six inches, convex radii up to 4½ inches, two angles and radius, and other diversified forms. Brazilian diamond tool is furnished with unit. It has angular travel of 3 inches, 8½ inch wheel size capacity, and may be used on universal surface and cylindrical grinders of all types. Made by **J. & S. Tool Co.**, 477A Main St., East Orange, N. J.

▲ Mention Item NED-2316 when writing ▲

PUTTING CARS ON THE SPOT

★ No waiting for a switch engine when an S-A Car Puller is on the job. Spot cars *immediately* when and where you want them. Any man or woman can move cars easily with a rope snubbed around the electric capstan.

Up to 3 loaded cars are moved by the No. 11...6 cars by the No. 12.



S-A CAR PULLER

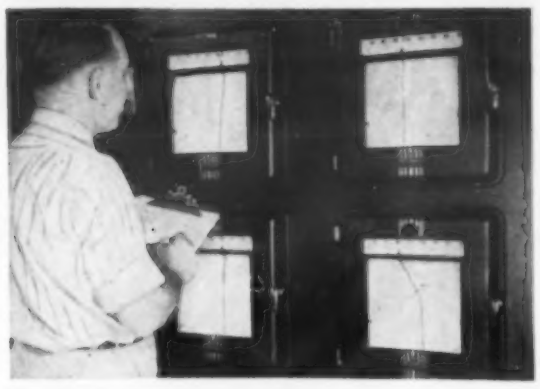
Send for full data on Car Pullers. Request Bulletin No. 1339

STEPHEN S-ADAMSON MFG. CO.

Car Pullers · Car Loaders · Winches · SealMaster Ball Bearings · Speed Reducers · Conveyors · Elevators · Screens

12 RIDGEWAY AVE., AURORA, ILL.

▲ Mention Item NED-2317 when writing ▲



Winning with Micromax Control On the Furnace Front

When exceptionally close control of temperature is required by Houze Glass Co., regulation is turned over to one of the Micromax Pyrometers shown above.

Even when temperature changes are small, the Micromax "feels" them and moves the butterfly air-valve to correct them; thus holding temperature balanced in the narrow band of high quality, high production war work.

For further details about Micromax for temperature control, write for our catalog.

LEEDS & NORTHRUP COMPANY, 4905 STENTON AVE., PHILA., PA.

LEEDS & NORTHRUP

MEASURING INSTRUMENTS · TELEMETERS · AUTOMATIC CONTROLS · HEAT-TREATING FURNACES

Jrl Ad N-33A-645(2)

▲ Mention Item NED-2318 when writing ▲

Some of this story may never be told—but . . .

IT'S a story of quick conversion from peacetime to war output—the old Cleveland Worm Gear Speed Reducers had to keep on carrying the load. The user reports:

"*Eight large Cleveland Units* have been driving our heavy equipment for an average of 16 years apiece;

"They are operating *300 days a year;* they require *practically no maintenance;*

"*Seven of them have needed no new parts* in 5 years—the other has had just 1 replacement since 1938. They always run."

Your Clevelands won't let *you* down!

The Cleveland Worm & Gear Company, 3283 East 80th Street, Cleveland, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication.
In Canada: PEACOCK BROTHERS LIMITED

CLEVELAND WORM GEAR *Speed Reducers*

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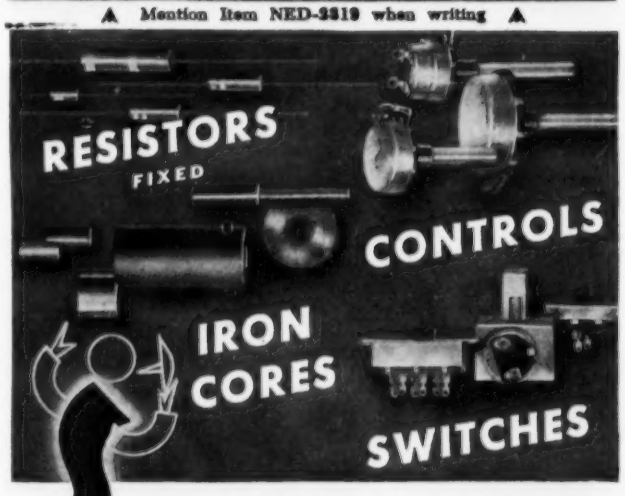


Sold as original equipment to manufacturers only. Prices and samples on request.

. . . to match your specifications

Stackpole's years of experience in meeting exacting specifications are your assurance of dependability—Stackpole's unexcelled production facilities assure fastest possible service. Write for catalog on above items: Fixed Resistors (to 3-watts); Variable Resistors for every volume, tone and sensitivity control and many special needs; Switches for small circuit requirements; and Iron Cores for applications up to 150-175 megacycles.

STACKPOLE CARBON CO., ST. MARYS, PENNA.

STACKPOLE

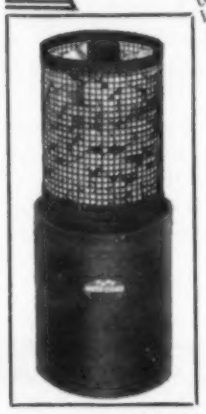
EVERYTHING IN CARBON—BRUSHES (for all types of rotating equipment)—ANODES—ELECTRODES—BEARINGS—WELDING EQUIPMENT—PIPE—PACKING, PISTON AND SEAL RINGS—BRAKE LINING, etc.—ALSO MOLDED RARE METAL CONTACTS.

▲ Mention Item NED-2320 when writing ▲

ELIMINATE Dampness, Mold, Mildew with WATER SORBER

Stops dampness, mold or mildew from damaging office and shop records, gauges, tools and other instruments. Water-Sorber is a compact appliance using patented chemical cubes that are harmless and non-staining, easy to handle and inexpensive. One filling (10 lbs.) of this chemical will absorb from 10 to 15 lbs. of moisture from the air.

The economical method of reducing moisture in storage vaults, tool rooms, photographic developing rooms, freight cars, telephone exchanges, ships, yachts, food and drug storage closets and other places where mold and mildew accumulate. WATER-SORBER has no moving parts. Available in two sizes. Designed and made by experienced air conditioning engineers.



Write for descriptive folder N.

THE GENERAL AIR CONDITIONING CORP.
CINCINNATI, OHIO

▲ Mention Item NED-2321 when writing ▲

DON'T study too long! You'll find that most "standard" shaped carbide tools LOOK pretty much alike.

The point is, you can't SEE the difference in carbide tools. The real difference can only be demonstrated *on your machines!* There you will see the increased production with TECO Carbide Tools, because of the exceptional cutting ability of the vital Carbide blank.

TECO Carbides are made to rigid standards of hardness, density and uniformity. They have greater resistance to wear and breakage . . . hold cutting edges and accurate tolerances for longer runs — produce more pieces between grinds — save grinding and re-tooling time.

Make on-the-job comparisons with TECO Carbide Tools and see the difference! Available promptly in grades, styles and sizes for practically all machining needs.

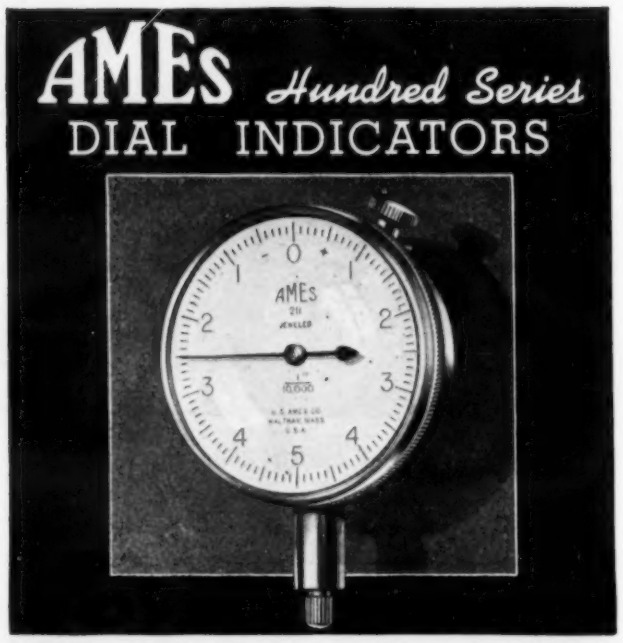
Write for your copy!
NEW TECO CATALOG
Gives specifications of all standard TECO Carbide Tools and Blanks for turning, boring, facing and cut-off operations.

TUNGSTEN ELECTRIC CORPORATION • 888 39th St., Union City, N. J.
Branch Office: 2906 Euclid Avenue, Cleveland, Ohio
Representative: Architects and Builders Bldg., Indianapolis, Ind.

TECO CARBIDE TOOLS
Pioneers in Tungsten Carbides for over a Quarter Century

▲ Mention Item NED-2322 when writing ▲

AMES *Hundred Series* DIAL INDICATORS



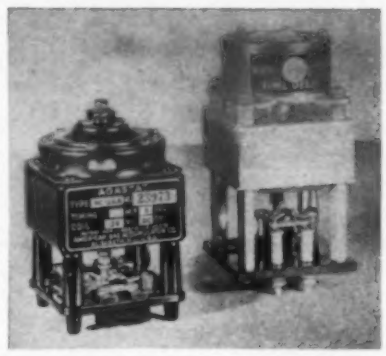
Made to A. G. D. specifications in four sizes with fourteen different dial numberings indicating thousandths, half and tenths of thousandths inches. Plain or jewel bearings. Shock absorbers for all models

Send for new catalog No. 52

B. C. AMES CO., WALTHAM, MASS.

▲ Mention Item NED-2323 when writing ▲

TIME DELAY RELAY



Making or breaking of electrical circuits is performed at predetermined intervals with this redesigned electro-pneumatic time delay relay, designated Agastat. Improved unit has increased operation and functional efficiency, conserves vital materials and is more compact in size.

Basic design and operating principle have been retained. This diaphragm type timing device provides precision operation and is unaffected by heat, cold or variations in operating voltage, temperature or humidity. Illustration shows both improved and previous models. Weight has been reduced by 1 pound, 6 ounces and height from 5 to 4 inches. Made by **American Gas Accumulator Co.**, Elizabeth, N. J.

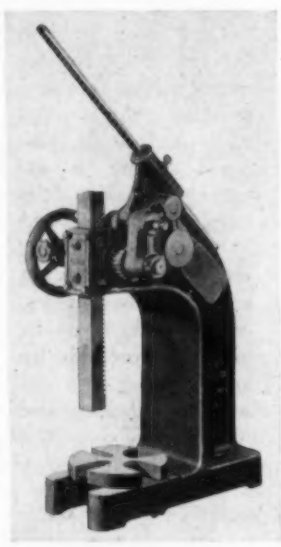
▲ Mention Item NED-2324 when writing ▲

FLUORESCENT BALLAST

Developed to facilitate use of three-lamp, 40-watt fluorescent lighting fixtures in industrial plants, this high-power-factor ballast replaces previous design which required use of two ballasts in this type fixture. Ordinarily hook-up used two lamp, 40-watt and single lamp 40-watt ballasts. New unit simplifies installation and reduces amount of wiring required for connections. Ballasts are designed to operate on lighting circuits of 110-125, 199-216, 220-250 and 240-280 volts. Power factor is 90 per cent or higher. Made by **General Electric Co.**, Schenectady, N. Y.

▲ Mention Item NED-2325 when writing ▲

RATCHET TYPE ARBOR PRESS



Design of this combination compound and simple ratchet type arbor press permits use of lever in convenient position at all times. Unit may be equipped with hand wheel to bring ram down to work quickly. Counterweighted arm assures quick return of lever after down stroke. Leverage is obtained instantly by means of sliding pin. Illustrated bench model is available in capacities ranging from 6 to 15 tons. This machine is also made in floor model type.

Arbor press of plain lever and simple ratchet designs in wide range of capacities are also available in bench and floor models. Made by **Famco Machine Co.**, 1302 Eighteenth St., Racine, Wis.

▲ Mention Item NED-2326 when writing ▲

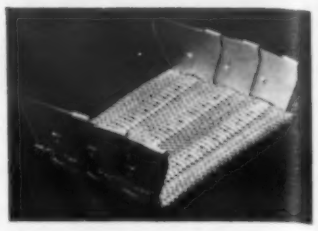
ADSCO - BANNON TILE CONDUIT *is Designed with a Base Drain*

● One failure of a Pipe Conduit WITHOUT Base Drain may flood its entire length.
The base drain in ADSCO-Bannon Tile Conduit rids it of ground water seepage—also any water from within, making it possible to put pipes together with ordinary threaded connections.
Whether threaded or welded it is easy to install a group of pipes. Pipe can be worked on where you can get at it, then let down in place. No working at close quarters. Highly skilled labor not required.
Made of non-critical materials. Send us details of proposed installation for prompt quotation or write for illustrated bulletin No. 35-67D.

AMERICAN DISTRICT STEAM COMPANY NORTH TONAWANDA, N. Y.
Making "UP-TO-DATE" Steam Line Equipment for over 60 years

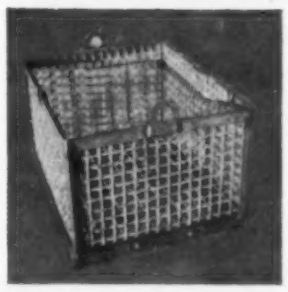
▲ Mention Item NED-2327 when writing ▲

WIRE BELT *for* CARTRIDGE ANNEALING



Cambridge belts assure speed, low operating costs and trouble-free service in continuous annealing of cartridge cases. Costly tie-ups because of breakdowns are eliminated because of simplicity of repair when required. Suitable for temperatures up to 1650 degrees F. Extremely rugged construction and low thermal capacity make them standard in many plants.

Annealing and Pickling Baskets



Standard and special annealing baskets in scores of sizes and types are available. Your request for information will bring complete data . . without obligation.

CAMBRIDGE
WIRE CLOTH COMPANY
CAMBRIDGE, MARYLAND

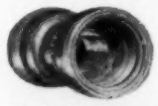
▲ Mention Item NED-2328 when writing ▲

Thanks to the SUNNEN PRECISION HONING MACHINE

GIRLS IN 'TEENS are handling jobs in "tenths"!

Aluminum Aircraft Link "produces high finish without bell-mouthing."

Bronze Valve. The Sunnen method of honing is used to secure a high finish and accuracy.



Aviation Hydraulic Cylinder made of Aluminum-Alloy. Improves the quality of the bearing surface. An extremely smooth surface-finish is secured.

Inner Bearing Ring "Accurately removes last 'tenth' of stock."

Cones for Wheel Balancing Machine "Accurately align hones two interrupted surfaces."

Aircraft Valve Tappet Roller. 4-Micro finish.

and they can be trained in a few hours.

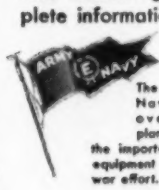
The guaranteed accuracy (.0001") and super-smooth finish (2 to 3 micro inches) assure fewer rejects and interchangeability of parts.

Low in Cost — Economical to Operate
The basic price of the Sunnen Precision Honing Machine is only $195! And it's economical to operate.

No jigs or fixtures — work is held in hands. Relieves big internal grinders for other jobs.

Wide range — handles any internal diameter from .185" to 2.625".

Find out what Sunnen equipment can do for you on your job — one of our engineers will be glad to call and help you solve your problems. Or — if you prefer — write for free bulletin giving complete information.



The coveted Army-Navy "E" waves over the Sunnen plant — evidence of the important part Sunnen equipment is playing in the war effort.

SUNNEN PRODUCTS COMPANY
7931 Manchester Ave., St. Louis, Mo.
Canadian Factory: Chatham, Ontario

SUNNEN

▲ Mention Item NED-2329 when writing ▲

Speed Welding Production

WITH STEEL-GRIP ONE-PIECE-BACK WELDERS' GLOVES

Specially designed Steel-Grip Welders' Gloves give extra protection against heat and wear. Keep production "rolling." Entire back cut in one piece from special tanned heat-resistant leathers. No seams in back. No burned-through or ripped seams. Wool heat breaker lining inside back for added protection. Finger seams welted at points of greatest wear. Wide strap thumb reinforcement. Try a pair. Only $1.85. Outlast other gloves. Order No. 13475 now from jobber or direct. 10% discount on 12 pair lots. Write for welders' clothing catalog.

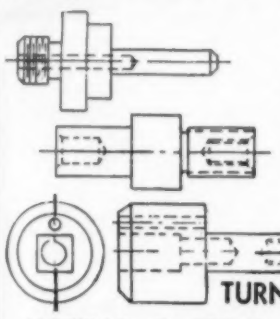
OLD HICKORY STEEL GRIP

INDUSTRIAL GLOVES COMPANY
635 Garfield Boulevard Danville, Illinois
(In Canada: Safety Supply Co., Toronto)

▲ Mention Item NED-2330 when writing ▲

Let us help YOU make your SMALL PARTS
METAL—PLASTIC—RUBBER

complete—or machine finishing



We have precision tools with multiple heads. Competent operators to turn out complete or machine-finishing of parts up to 3 to 4 inches in size in large volume for swift production. Twenty-five years of machine-and-parts building guarantees satisfaction. Send blueprints for all details for prompt action and quotation.

TURNING—BORING—FACING
CUTTING—TAPPING—COUNTERSINKING—ETC.

NEW JERSEY MACHINE CORPORATION
13th St. & Willow Ave. • HOBOKEN, N. J.

▲ Mention Item NED-2331 when writing ▲

Picture of a man using a torque wrench

"CLICK"

The New Livermont Torq-Snap Wrench can be used efficiently in total darkness and in noisy areas as well—inside a wing, hull or semi-dark hanger—on the flight ramp or on the field with the engines running.

When the proper predetermined torque load is reached, the Torq-Snap gives an audible "click" and a small plunger taps the operator's hand (see arrow). *No visual attention.* No dials or battery operated indicators.

The new Torq-Snap has passed exhaustive tests and operates within a very close tolerance. Twelve sizes are available with open or box ends, either offset or straight. Write for complete specifications.

TUBING SEAL-CAP, INC.
215 W. 7th STREET, LOS ANGELES
East. Representative, 428 New Center Bldg., Detroit

▲ Mention Item NED-2332 when writing ▲

INDUSTRIAL CASTER

Used principally on portable tanks, pumps, dollies and floor trucks, Nicro Steel casters will perform satisfactorily under loads ranging from 400 to 800 pounds per caster. Construction embodies two large diameter ball raceways for easy swiveling. Strength of material permits long lead or "rake". Pressure lubrication fittings are provided in both swivel and wheel.

Casters can be furnished with either metal or ABK Resinoid floor-protective wheels. Roller bearings are standard in most models, with Oilite or porous iron bearings available for metal wheels. Wheel sizes range from 3 to 6 inches in diameter. Made by **The Rapids-Standard Co.**, 8535 Bond Ave., N. W., Grand Rapids, Mich.

▲ Mention Item NED-2333 when writing ▲

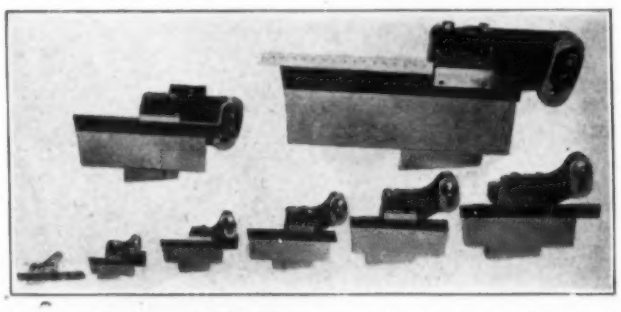
HACK SAW FRAME

Adaptable for countless metal working jobs, No. M-192 low angle hack saw frame is equipped with waveset 10-inch blade. Any blade, however, can be used in replacement. Even broken blades can be fitted into it and they work equally as well as whole blades. Frame measures 13 inches in length. Made by New Britain Machine Co., Dept. A, New Britain, Conn.

▲ Mention Item NED-2334 when writing ▲

CUT-OFF TOOLS

Available in styles and sizes for both turret and engine lathes, Anthony cutting-off tools are designed to make straight cuts so that no refacing is necessary. For delicate work,



blades only 1/16 inch thick are used and for heaviest work in cutting 30 inches or more, 7/16-inch blades are used. Blades may be completely used because support and "safety-slip" prevent it from breaking when fouled.

Pivoting trunnion and safety-slip design are common on all models. On smaller tools, a supporting blade is used to prevent chattering in machine, damage to equipment and breaking of blades. Tools may also be used for slitting operations in shapers or planers. Illustration shows group of tools in varied sizes and designs. Made by **Anthony Tool Co.**, 239 Fredericksburg Rd., San Antonio, Texas.

▲ Mention Item NED-2335 when writing ▲

ROBINS
CONVEYING BELT COMPANY

changes its name!

. . . . adopting a new one more truly descriptive of the scope, utility and applications of its products and services.

This move does not involve any change in directorship, management, or corporate structure.

For Material Aid in Materials Handling . . . It's ROBINS

ENGINEERS • MANUFACTURERS • ERECTORS
ROBINS CONVEYORS INCORPORATED (ROBINS CONVEYING BELT CO.)
PASSAIC • NEW JERSEY
MATERIALS HANDLING MACHINERY

▲ Mention Item NED-2336 when writing ▲

IT COSTS LESS—To Use
AURAND
CLEANING TOOLS

No special skill is required to use the Aurand Cleaning Tool — cutter heads are renewable — and it takes less time to do a thorough cleaning job. Aurand Cleaning Tools remove paint, scale, rust and other accumulation by powered, rotary chipping. An even depth surface is assured by an adjustable shoe control.

For Further Information Address Dept. 14

AURAND MFG. & EQUIP. CO.
2643 Colerain Avenue • CINCINNATI, OHIO

▲ Mention Item NED-2337 when writing ▲

WYO-LITE
SPRAY GUN INSULATION
WILL SAVE Labor AND Time

WYO-LITE Plastic Insulation can be supplied in a special size and used for SPRAY GUN application. This method of application is successfully used in many leading Steel Mills. The only equipment needed is a special SPRAY GUN that costs only $10.00 or $15.00, and air must be available. The SPRAY GUN application assures uniform density and you obtain maximum adhesion. SPRAY GUN application requires less labor and saves time—can be applied by your own workers without previous experience.

WYO-LITE Insulation applied by the SPRAY GUN method gives you all the advantages that WYO-LITE Plastic Insulation is noted for. You obtain high insulating values and 50% greater coverage than other types—ONE TON COVERS 1,500 SQ. FT., 1" THICK.

Write for Details and Prices

WYO-LITE INSULATING PRODUCTS
4612 East 71st St. Cleveland, Ohio

1 TON of WYO-LITE Covers 1500 SQ. FT.

▲ Mention Item NED-2338 when writing ▲

LYON Adjustable SHELVING

ENGINEERED IN WOOD FOR THE DURATION

● Lyon Wood Shelving (patent applied for) is simple to adjust to meet the changing storage requirements of your wartime operation. Storage spaces may be adjusted every 3" vertically and horizontally without use of tools. Quickly set up, rearranged, or moved to another location . . . with inexperienced help. Mail the coupon for full particulars

LYON METAL PRODUCTS, INCORPORATED
2205 Madison Avenue, Aurora, Illinois
Send Catalog of Lyon Storage Units Engineered in Wood.
Name
Address
City State

LYON METAL PRODUCTS, INCORPORATED AURORA ILLINOIS
BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

▲ Mention Item NED-2339 when writing ▲

FLOATLESS
MAINTENANCE-FREE
LEVEL CONTROL

NO FLOAT SWITCHES Photoswitch Level Control operates entirely *electronically*.

UNLIMITED LIFE Photoswitch Level Control has no mechanical parts to wear out.

SAFETY Photoswitch Level Control passes only microamperes of current through the liquid—is safe with combustibles.

OPERATION Two probe rods reach into the tank to the levels where pump-on and pump-off operations are required. Actual contact of the probes with the liquid operates a Photoswitch Electronic Control which makes and breaks the pump-control circuit.

PHOTOSWITCH *Electronic* Level Controls, effective for all conductive and non-conductive liquids and powders, are available for single-level indication or control, on and off pump control at two levels, and boiler feedwater control.

Write for Level Control Bulletin 1100

PHOTOSWITCH INCORPORATED
PHOTO-ELECTRIC & ELECTRONIC CONTROLS FOR EVERY INDUSTRIAL PURPOSE
CAMBRIDGE, MASS. • *District Offices* IN ALL PRINCIPAL CITIES

▲ Mention Item NED-2340 when writing ▲

Get this G-2* Working for YOU

A COMPLETE INTELLIGENCE SERVICE* OF VEEDER-ROOT COUNTING DEVICES

Assign a Veeder-Root Counter to every one of your vital war-production machines, and get a powerful new aid in protecting your work-schedules against the subversive effects of delays, mechanical slow-downs, shortages, over-runs, wasted material, and all the other penalties caused by lack of accurate *Control by Count*. Veeder-Root Counters are easy to install, without interrupting production.

▲ Mention Item NED-2341 when writing ▲

When Parts Must Be Held in Vertical Plane for Drilling or Tapping . . . .

USE THIS **KNU-VISE** FIXTURE

It's a complete fixture in itself—requiring only special jaws that you can make for the particular job at hand—especially efficient for use when small parts must be held in vertical position for accurate drilling, tapping, reaming, milling, assembly, or other operations that are constantly repeated. Every piece is held in exactly the same position—so each operation is duplicated with absolute precision.

Send for complete catalog with prices

KNU-VISE INCORPORATED
2212 Eighth St., Detroit, Mich.
4328 San Fernando Rd., Glendale, Calif.

▲ Mention Item NED-2342 when writing ▲

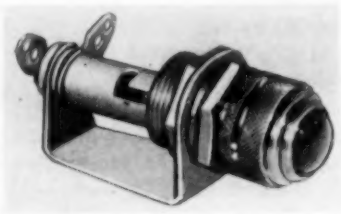
HEAVY DUTY ELECTRIC DRILL

Designed especially to speed up tough skin drilling in airplane construction, Model 47 Skildrill is also adaptable for many production drilling operations and has capacity up to ¼ inch in steel and ½ inch in wood. Small, light in weight and compact, this tool has adequate power for all operations. Full drilling speed under load is provided for maximum output.

Of correct size, it may be used in restricted areas and is so balanced that it may be readily handled. Features include diecast body, helical-cut gears and full anti-friction bearings. Control is effected through two-pole momentary contact switch which has lock for continuous operation. Unit is driven by universal motor which is available in speeds of 1800, 2500, 3500 and 5000 revolutions per minute. Made by **Skilsaw, Inc.**, 5027 Elston Ave., Chicago, Ill.

▲ Mention Item NED-2343 when writing ▲

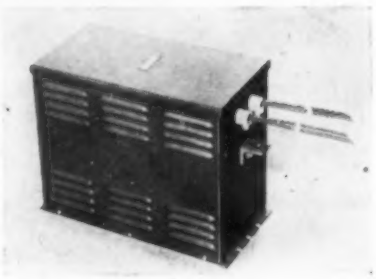
PILOT LIGHTS



Particularly suited to aircraft, marine, signal and similar applications where various intensities of light are desired under constantly changing conditions, shutter type pilot lights permit gradation of light from bright, through intermediate glows, to totally dark with 90 degrees rotation of shutters. Known as Gothard models 430 and 431, these lights are available with red, green, amber, blue or opal lenses or with polarized lens. Model 430 is equipped with faceted jewel; model 431 with plain jewel. Made by **Gothard Mfg. Co.**, 1380 N. Ninth St., Springfield, Ill.

▲ Mention Item NED-2344 when writing ▲

VOLTAGE STABILIZER



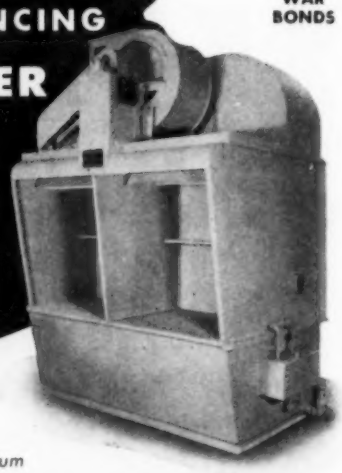
Providing constant output of 115 volts from circuits varying between 95 and 130 volts, automatic voltage stabilizer is not affected by load power factor. Variations in load from no load to full load, or changes in power factor from unity to 0.8 lagging do not disturb operation.

Stabilizer can be applied wherever close voltage regulation is required for operation, as in calibration of meters, instruments and relays. It is completely self-protecting and will operate throughout range from open circuit to short circuit without damage. Ratings from 50 to 5000 volt-amperes are available. Made by **General Electric Co.**, Schenectady, N. Y.

▲ Mention Item NED-2345 when writing ▲

ANNOUNCING ANOTHER *Hydro-Whirl* DEVELOPMENT

BUY WAR BONDS



ORIFICE TYPE DUST COLLECTOR
Specially Designed for Processing of Magnesium

In step with the country's effort to conserve critical materials, Industrial's engineers (recognized as pioneer developers of dust collectors and grinding booths for magnesium) introduce this new orifice type dust collecting unit.

Like other Hydro-Whirl models, it is very efficient—yet it has only one mechanical moving part: a fan unit.

Dust laden air is drawn through an orifice. The violent action of the water spray thus produced causes the dust to be "water-whirled" out of the air and knocked down into a tank below, where it forms a sludge which can be easily removed. The cleaned air may be returned to the room, effecting a worthwhile saving in building heating costs.

The addition of this unit to our line now provides 3 distinct Hydro-Whirl types, enabling you to go to one source to solve practically any dust problem you may have.

This new unit is available in either booth type (as shown) or individual collectors for grinding stands.

INDUSTRIAL EQUIPMENT CORPORATION
formerly Industrial Sheet Metal Works
632 EAST FOREST AVENUE • • DETROIT, MICHIGAN

▲ Mention Item NED-2346 when writing ▲

It's a WAR OF TRANSPORT

and it begins right here

The three thousand-mile hauls to the battlefronts begin with raw materials or unfinished goods in factories. That's where Service Casters have specialized in solving problems of transport. Their reputation is for *highest speed consistent with heavy duty*. Specify them, as priorities permit, for reconditioning your hauling units.

ForgeWeld—Representative of Service Caster heavy duty design with double ball-bearing swivel and Hyatt-bearing roll. Drop-forged steel and unbreakable.

THE SERVICE CASTER AND TRUCK CO.
578 N. Brownswood Ave., Albion, Mich.
Eastern Factory: 488-98 Somerville Ave., Somerville (Boston), Mass
Toronto, Canada: United Steel Corporation, Ltd., Canadian Licensee

TRUCKS CASTERS AND SPECIALLY DESIGNED LIFTING AND HAULING UNITS

SERVICE

▲ Mention Item NED-2347 when writing ▲

NEW NOBUR TOOL SPEEDS BURRING OF HOLES!

REMOVES BURRS FROM INSIDE AND OUTSIDE EDGES IN ONE OPERATION!

The new NOBUR TOOL eliminates burring as a bench operation and makes burring a fast, easy machine operation. It can be handled by anyone or any machine with complete safety. All burrs are instantly removed, smoothly and accurately, and burring can be done as fast as parts can be handled by the operator.

New Nobur tool releases vitally needed manpower for other war work, cuts burring time to minimum, increases production of finished parts and eliminates the waste of vital materials.

Write NOW for complete information on burring this faster, better way!

NOBUR MANUFACTURING CO.
908 North Orange Drive, Los Angeles, Calif.

NO BUR TOOLS

NEW NOBUR TOOL MAKES BURRING A MACHINE OPERATION!

▲ Mention Item NED-2348 when writing ▲

Photo Courtesy Lockheed Aircraft Corporation

For Circuits that MUST NOT FAIL

—and for hundreds of other wartime jobs

KESTER CORED SOLDERS

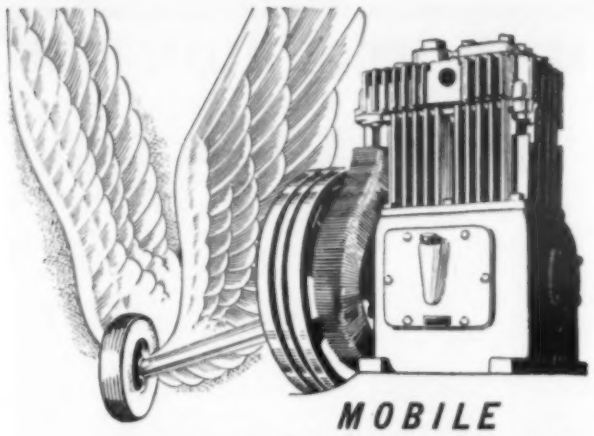
- Kester Cored Solders are found on production lines everywhere, their superiority and specialized fitness for every task helping to put a fighting heart into Allied war machines. They're expediting production, too; alloy and flux, in right amount, are applied in one sure, simple operation.
- Kester Rosin-Core Solder protects electrical circuits for communication and control against service difficulties of every sort. The patented plastic rosin flux won't cause corrosion or injure insulating material. Like Kester Acid-Core Solder for general applications, Kester Rosin-Core Solder holds tight under vibration, bending, shock, and expansion and contraction of temperature extremes.
- Kester engineers will gladly assist you with any production problem involving solder. Write fully, without obligation.

SILVER-LEAD ALLOY—Kester is prepared to offer, for test on your work, a wartime solder of silver and lead in both cored and wire form.

KESTER SOLDER COMPANY
4249 Wrightwood Avenue, Chicago, Illinois
Eastern Plant: Newark, N. J. Canadian Plant: Brantford, Ont.

KESTER *Cored Solders*
STANDARD FOR INDUSTRY

▲ Mention Item NED-2349 when writing ▲



MOBILE AIR COMPRESSOR SPECIALISTS

new MOBILE UNIT FOLDER

QUINCY COMPRESSORS roll along with the armed forces and throughout wartime industries. Some move on wheels, others on skids, tractors and watercraft. Each has been designed especially for its particular duty by QUINCY COMPRESSOR SPECIALISTS who design and build air compressors *exclusively*. Their experience is available on problems of both mobile and stationary compressed air supply.

←ILLUSTRATES NUMEROUS NEW MODELS. WRITE TODAY to Department N-4, for your FREE copy.

QUINCY COMPRESSOR CO. • QUINCY, ILLINOIS

Quincy COMPRESSORS

▲ Mention Item NED-2350 when writing ▲

D. O. JAMES CONTINUOUS-TOOTH HERRINGBONE GEAR

Triple Reduction Continuous-Tooth Herringbone Gear Speed Reducer (with cover removed)

SPEED REDUCERS

MEET THE DEMANDS AND REQUIREMENTS OF INDUSTRY

Their great load carrying capacity, their very high efficiency and their continued proven performance indicates the engineering soundness of the design and manufacture of D. O. James Generated Continuous-Tooth Herringbone Reducers.

These units are the product of an organization with over a half-century of gear making experience and have a wide use in many different industries.

Catalogs are available containing complete engineering data, advantages, weights and prices.

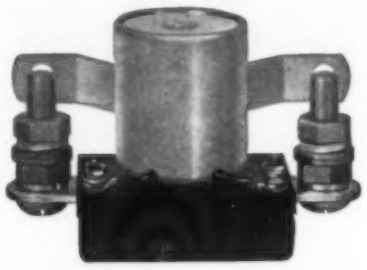
D. O. James ESTABLISHED 1888 MANUFACTURING COMPANY

1140 W. MONROE STREET, CHICAGO, ILLINOIS

▲ Mention Item NED-2351 when writing ▲

SOLENOID CONTACTOR

Constructed so that contacts do not chatter as result of voltage drops caused by starting motor current surges, type B-8 solenoid contactor meets U. S. Army specifications for remote control of aircraft engine starter motors, it is claimed. It performs function similar to that of type B-4 contactor with which it is interchangeable on intermittent duty applications. Contacts of B-8 type close firmly at 6 volts, and entire unit complete with terminal bolts, nuts and washers weighs approximately ¾ pound less than B-4 unit.

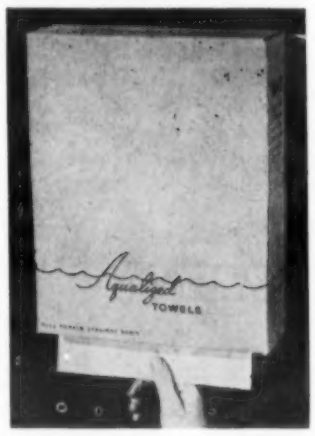


Contacts are rated at 200 amperes. Unit operates at 25 volts direct current, intermittent duty. At 24 volts, coil draws 3 amperes. Vibration resistance exceeds ten times gravity. Made by Guardian Electric Mfg. Co., Dept. 8, 1626 W. Walnut St., Chicago, Ill.

▲ Mention Item NED-2352 when writing ▲

PAPERBOARD DISPENSER

Having same capacity as former metal cabinet, paperboard dispenser for Aqualized paper towels may be conveniently refilled. Dispensers are shipped flat in car with towels, thus saving shipping and storage space. Cabinet has admonition to use only one towel printed in blue on both ends to encourage economy. Towels are made by patented wet strength process so that they resist tearing and shredding even when towel is saturated with water. Because it does not go to pieces, entire surface can be thoroughly utilized. Economy suggestion on cabinet should help combat wasteful towel habits. Made by Brown Co., Dept. A, 500 Fifth Ave., New York City.



▲ Mention Item NED-2353 when writing ▲

NOTCHING PRESS

Capable of cutting up to 5 by 5-inch, 90-degree notch out of corner or side of metal sheet in 14-gage mild steel, this No. 43 Little Blacksmith is of arc welded construction. Machine will also cut rectangular piece out of side of sheet with maximum depth of 4 inches, minimum length of 5 inches and maximum length of 10 inches. Adjustable gauges permit quick set-up and accurate work may be duplicated readily. Machine may also be used for cutting up to 10-gage aluminum. Made by The J. F. Kidder Mfg. Co., 376 Colchester Ave., Burlington, Vt.

▲ Mention Item NED-2354 when writing ▲

NEED HELP IN MEETING GOVERNMENT PACKING SPECIFICATIONS?

Whether your vital products go into storage or travel thousands of miles over land and sea, they must meet Government packing specifications. General Box engineers have obtained wide experience and a thorough knowledge of the requirements for war products containers through co-operation with manufacturers in many industries.

By taking advantage of General Box's experience, you may be able to solve your shipping problem quickly . . . find out which of the allowable alternates is most practical for your product. Write us.

For manufacturers of war products: General Heavy Duty Wire-Bound and Nailed Wooden BOXES and CRATES.

For Domestic Service: Corrugated BOXES and Wood Cleated Fibreboard BOXES.

Discontinued for the Duration: Generalite and Nailed Strapped B. VERAGE CASES.

GENERAL BOX COMPANY

General Offices:
Corner of Dearborn & Ill. Sts., Chicago, Illinois
District Offices and Plants: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon: Continental Box Company, Inc.: Houston, Dallas.

▲ Mention Item NED-2355 when writing ▲

Do you WELD Pipe? Use WEDGE Split CHILL RINGS

WEDGE Chill Rings with the patented SPLIT Feature have greatly increased the efficiency of pipe welding. They assure STRONGER joints that withstand shock and vibration, the pipe will fail before the REINFORCED joints. Why not investigate?

WEDGE makes.. All Types of PROTECTORS

Split Feature Patented

It is NOW important to prevent damage to threads, and to keep them clean, in transit or on valuable parts in process—to avoid loss of material and save time. Many war plants use WEDGE Protectors. Write.

WEDGE PROTECTORS, INC.
9528 RICHMOND AVE. CLEVELAND, OHIO

Use WEDGE Chill Rings • Thread Protectors

▲ Mention Item NED-2356 when writing ▲

2nd January, 1943

Messrs. Continental Machines, Inc.
Minneapolis, Minn.

Gentlemen:

We are sending you a photograph showing a batch of DoAlls operated by girls.

Our experience over the last 5 years is quite interesting. Prior to the outbreak of the war, the saving effected on the DoAlls represented a difference between *Loss* and *Profit* when meeting competitors' prices for Gauges, Form Tools and Press Tools. Today, of course, the saving in time is much more important.

It is not an uncommon thing for us to produce a very intricate Form Tool at 24 hours' notice, and thus remove bottlenecks which, under normal circumstances, would take several weeks of highly skilled labour to overcome the difficulty when using what would be termed orthodox machines and methods.

Yours sincerely,

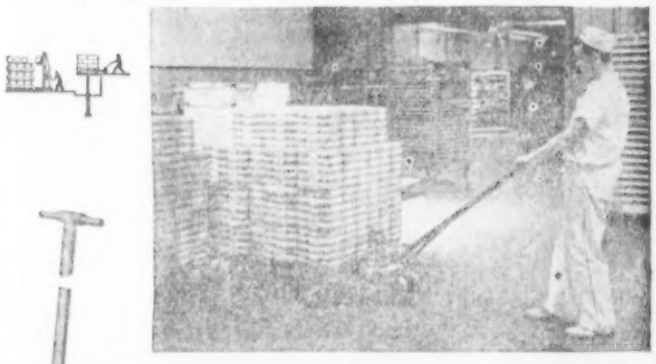
G. P. Barrott
PRECISION WORKS, Surrey

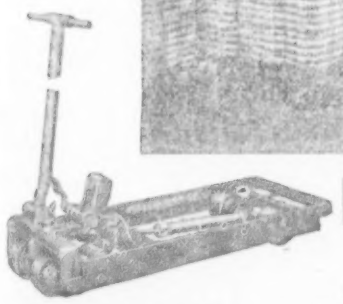
NEW HANDBOOK

265 pages of pictures and data about the Art of Contour Machining, with many ways to save man hours and material in metal working plants. Ask for copy.

CONTINENTAL MACHINES, INC.
1214 S. Washington Ave. Minneapolis, Minn.

▲ Mention Item NED-2357 when writing ▲





RED GIANT Liftrucks REQUIRE NO VACATION

On the job 24 hours a day, they never get sick. Take the easy, economical way to speed up war production by installing these popular, SAFE, labor saving trucks for more efficient materials handling. If you are now using RED GIANT trucks, one or two more may smack a bottleneck. Send TODAY for Special Folder describing the various types and sizes. There's a model to fit your needs. Ask for Folder NED.

We also make the famous REVOLVATOR Portable Elevators for all kinds of industrial lifting, piling and stacking.

Buy U. S. War Bonds

REVOLVATOR CO.
DESIGNERS AND MANUFACTURERS OF MATERIAL HANDLING EQUIPMENT
2032 86th St. NORTH BERGEN, N. J. Since 1904

▲ Mention Item NED-2358 when writing ▲

FASTER WELDING • STRONGER WELDS

FOR BETTER WELDS AT LOWER COST

▲ Mention Item NED-2360 when writing ▲

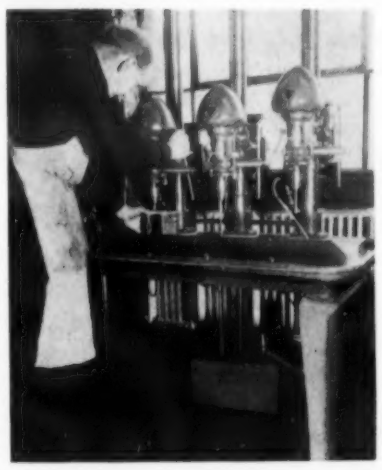
RELIEF GRINDING FIXTURE

Speeding up grinding operations as much as 300 per cent, I-G-C relief grinding fixture will handle countersinks of all types, center drills, integral pilot cutters and pilot drills, either right or left handed. Fixture can be quickly adjusted for correct relief and angle in relation to grinding wheel with only two wrenches. It will fit any standard grinder and will handle work from 1/16 to 1 inch in diameter with standard collets that are available. Lift of single cam is variable from 0.001 to ⅛ inch and adjustment pins are provided for 1, 2, 3, 4, 6, and 12-fluted cutter grinding. Cutters require infrequent grinding because of their equally ground cutting edges, it is claimed.

Construction of grinder is rugged. Main housing of cast iron supports hardened and ground spindle on two large bearing surfaces that require only periodic oiling. Cam is hardened tool steel, with steel adjustment pins. Fixture swings 90 degrees to right or left and base is calibrated in 5-degree increments. Machine is equipped with one Harding type 5-C collet of ¼-inch capacity and two wrenches, ready for attachment to grinder. Made by **Industrial Grinding Co.**, Dept. NED, Los Angeles, Calif.

▲ Mention Item NED-2362 when writing ▲

COOLANT SYSTEM

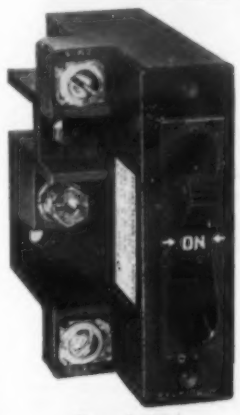


Completely portable, this Model 16-S combination coolant pump and tank is adaptable for use on lathes, shapers, milling machines, drill presses, grinders, cut-off saws and similar machines requiring constant stream of coolant or cutting oil. Being completely self-contained, unit can be transferred readily from one machine to another. It may also be installed as permanent equipment, if desired. Flow of coolant is easily regulated to meet machining requirements.

Centrifugal pump is driven by 1/30-horsepower motor and fits into 16 by 10 by 9-inch tank, which is constructed of 16-gage steel. Maximum capacity is 3¾ gallons per minute against a maximum pressure of 4½ pounds per square inch. Portable unit is equipped with flexible metal hose and control valve. Outfit is also available for permanent mounting. Made by **Eastern Engineering Co.**, 21 Fox St., New Haven, Conn.

▲ Mention Item NED-2363 when writing ▲

REDUCE MOTOR MAINTENANCE With HEINEMANN "Re-Cirk-it"



Auxiliary, Magnetic CIRCUIT BREAKERS

Here's positive protection for fractional hp. motors against burnouts and locked rotors. It trips instantly on short circuits and dangerous overloads but leaves circuit open on momentary harmless overloads.

Capacity: From 250 milliamps. up to 35 amps. on 110 and 220 volts AC. Also in low ratings for DC. Furnished with or without cabinet.

Send for Catalog 40 showing full line

HEINEMANN CIRCUIT BREAKER CO.
Subsidiary to Heinemann Electric Co. Est. 1888
106 PLUM STREET TRENTON, N. J.

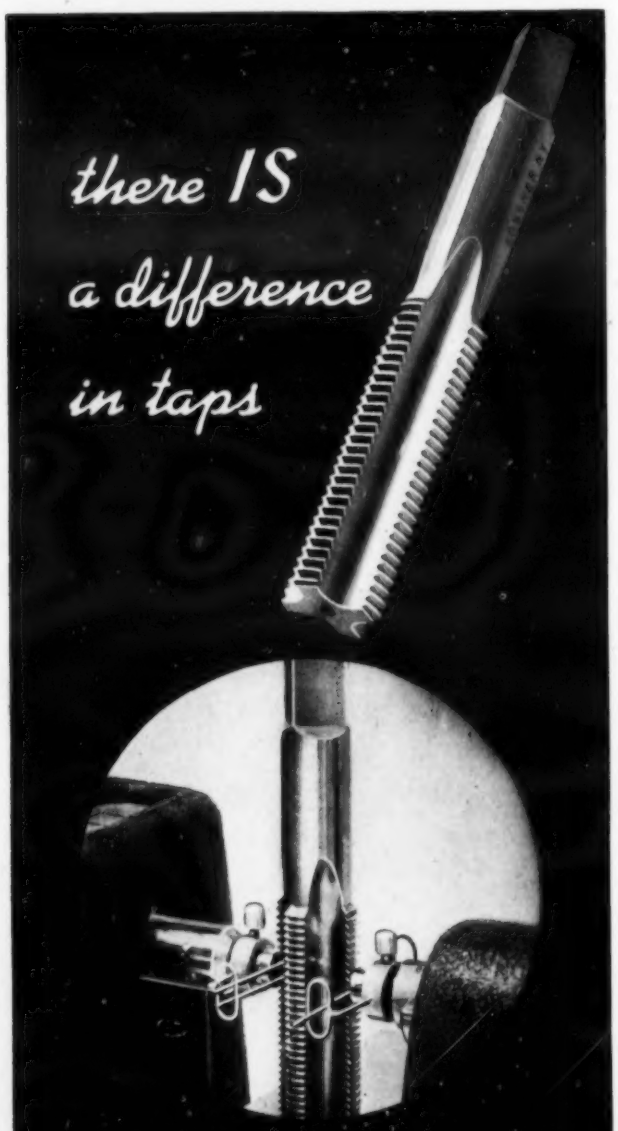
▲ Mention Item NED-2365 when writing ▲

● In aircraft, tanks, cannon, fighting ships and mobile units of all types, Bunting Bronze Bearings are fully meeting the advanced requirements of mechanized war.

Facilitating production in home-front factories are Bunting Bronze Standardized Bearings and Bars for machine tools, electric motors and industrial machinery, available from stock in many sizes, completely machined and finished, ready for assembly. Ask your wholesaler. Write for catalog. The Bunting Brass & Bronze Company, Toledo, Ohio . . . Warehouses in Principal Cities.

Bunting
BRONZE BUSHINGS • BEARINGS • PRECISION BRONZE BARS

▲ Mention Item NED-2366 when writing ▲



there IS a difference in taps

ACCURACY for example:

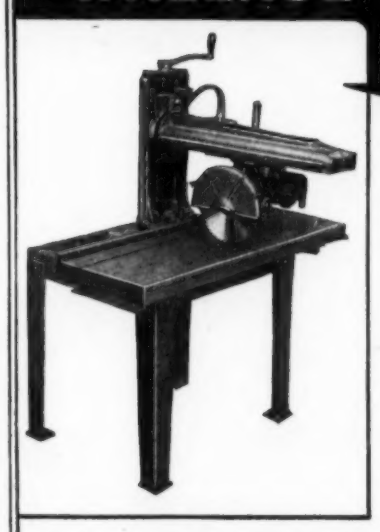
EVERY Sossner tap is measured with precision wires on master measuring instruments calibrated to .0001 inch. Modern comparators and accurate toolmakers' microscopes are used in a careful check of the form and lead.

TAPS AND GAGES OF AMERICAN NATIONAL AND BRITISH THREAD FORMS IN SPECIAL AND STANDARD SIZES

SOSSNER
161 Grand St., New York City or 27 B'way, Lynbrook, N. Y.
"33 year reputation for precision workmanship."

▲ Mention Item NED-2361 when writing ▲

WALLACE No. 1 RADIAL SAW



ALL-PURPOSE SAW FOR WOOD AND METAL

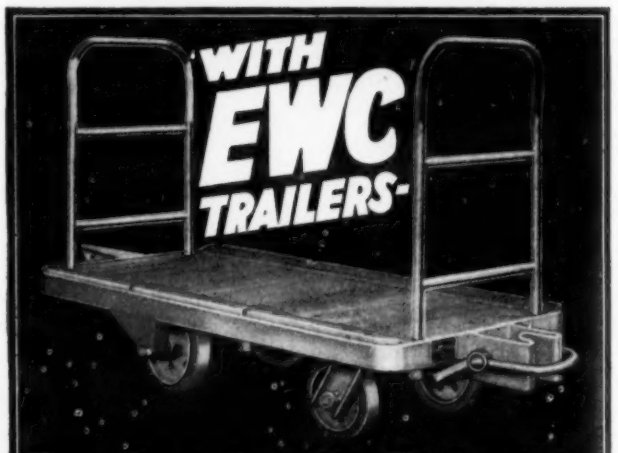
●

For cut-off, miter and rip work on Wood, Duralumin, Brass, Bronze, Steel, Glass and other refractory materials.

In the crating department, for plant maintenance work, for production sawing and cutting operations on wood, duralumin, metals, etc. the Wallace No. 1 Radial Saw is unexcelled. Material lays flat on table,—motor is moved back and forth in arm for cutting. Arm, column and motor all rotate 360° and can be set at any angle position for cutting. Motors to 2 H.P. Used with saw blades or 5/32" thick abrasive wheels. Write for bulletins on this cost-saving machine *today*.

J. D. WALLACE & COMPANY
145 S. California Ave. Chicago, Illinois

▲ Mention Item NED-2364 when writing ▲



You Can Handle Materials EASIER·FASTER·CHEAPER

High-pressure production requirements make minutes more precious than ever! That's why more and more plants, factories and warehouses are acquiring EWC trailers for efficient handling of materials.

Illustration shows our caster type trailer with automatic coupler; hook or chain type couplers available.

Many different types and capacities for every conceivable need. Write today for full data. Address Dept. N.

EWC TRAILERS
ELECTRIC WHEEL CO., Quincy, Ill.

▲ Mention Item NED-2367 when writing ▲

New BARRIERS to Confine Electric Current!

WAR is destructive but not all effort that goes into the big fight is wasted. Some of it is going to pay mighty big future dividends. That is especially true of the war work that is going on in the country's laboratories.

At Formica this work has resulted in the development of some new insulating materials with new and valuable characteristics which will be doing important jobs in American electrical products long after the war is over.

Three new grades MF, FF-10 and FF-41 accomplish things that could not be done previously with this laminated insulation. MF is a glass mat base for applications requiring low loss at radio frequencies (Power Factor .011; Dielectric Constant 4.6; Loss Factor 0.05 at 1 Megacycle).

F-10 is Fiberglas fabric base material combining good dielectric strength and heat resistance. FF-41 is designed to resist arcing. These materials have a new and important usefulness. At present they are available only for the most essential war uses. But later they will be widely applied.

FORMICA

THE FORMICA INSULATION CO.
4625 Spring Grove Ave., Cincinnati, O.

▲ Mention Item NED-2368 when writing ▲

"SHUTDOWNS ENDED ON THIS BALL MILL after we installed BUSS FUSES,"

says Electrical Contractor **L. J. Meller, Huntington Park, Calif.**

"About a year ago, Hercules Foundries Inc., 5950 S. Boyle Ave., Vernon, Calif., complained that frequent fuse blows were shutting down their ball mill and interfering with production.

"We investigated and found that the 50 ampere fuses they were using were the proper size to use—but that they blew on surges and momentary overloads.

"We figured that if the fuses had a longer time-lag they would be all right. 50 ampere BUSS Super-Lag fuses were then installed.

"They put an end to these shutdowns and Hercules Foundries haven't any more such production losses."

L. J. Meller,
Meller Electric Company,
Huntington Park, Calif.

Here is why BUSS fuses reduce or prevent needless blows

The fuse case is designed to insure good contact on the link, even when the fuse is renewed by an inexperienced person—and it is so designed that vibration or heavy overloads or the constant heating and cooling of the fuse will not permit poor contact to develop. Thus excessive heating which causes fuses to blow needlessly is prevented.

The fuse link used is the famous "BUSS Super-Lag." It has lag-plates attached to it. These give it a long time-lag so that unusually heavy starting current or other harmless overloads will not cause the fuse to blow.

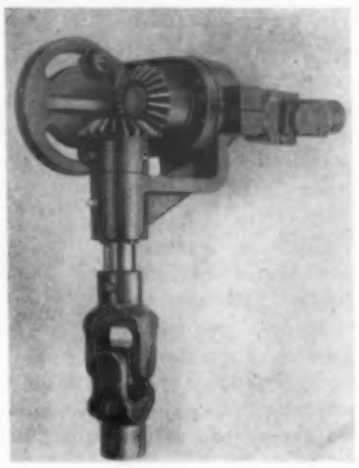
To guard against avoidable delays and loss of man-hours specify BUSS Super-Lag fuses whenever Electrical Equipment needs protection. Send for Bulletin RCS.

BUSSMANN MFG. CO.
University at Jefferson St. Louis, Mo.
Division McGraw Electric Company

BUSS Super-Lag FUSES

▲ Mention Item NED-2369 when writing ▲

ANGLE DRIVE



Manufactured in two grades, one for shipboard use and the other for domestic uses, Dean Universal angle drive has been developed for operation of valves, skylights, ventilators and other such openings. While one shaft remains fixed in either horizontal or vertical position, other may be rotated around axis of fixed shaft through angle of 180 degrees and locked in any position within this range by aid of clamp. When used with two Universal joints, additional angle of 20 degrees is available on either shaft, and further adjustment is obtained by revolving base through 90 degrees, by aid of circular slots.

Unit may be readily taken apart by simply removing two taper pins. It is furnished with or without Universal joints. Although designed for hand operation, it is capable of transmitting approximately ½ horsepower at speeds not exceeding 300 revolutions per minute. Model for shipboard use has frame of cast bronze, gears of bronze and shafts of stainless steel. For other domestic uses, frame is of cast iron and shafts and gears of steel. Made by Payne Dean & Co., Davis Place, Laconia, N. H.

▲ Mention Item NED-2370 when writing ▲

PRESS TYPE WELDER

Automatic air-operated series P-50 and P-100 press type welders are designed for high speed, precision projection and general spot resistance welding of sheet and structural steel assemblies, as well as wire and nonferrous metals. Illustrated series P-50 unit is made in two transformer capacities, 30 and 50 kilovolt-ampres; and series P-100 is made in 75, 100 and 150-kilovolt ampere capacities. NEMA types 1, 2 and 3 controls for welding timing and sequence are available, making almost limitless combinations of operations possible.

Machines are equipped with double acting air cylinders and control valves to provide smooth, fast action. Pressures depend upon size of cylinder and range from 800 to 4000 pounds, pressure being adjustable by means of regulating valve. Die platens with T-slots hold projection welding dies. Two 2½-inch diameter by 8-inch copper horns, machined to accommodate 1¼-inch water-cooled electrode holders either at right angles or in offset position, are supplied for spot welding operation. Standard throat depths are 12 and 24 inches. Made by **Pier Equipment Mfg. Co.,** 1264 Milton St., Benton Harbor, Mich.

▲ Mention Item NED-2371 when writing ▲

Paint Adhesion WITHOUT ANODIZING

TURCO

Phosphatizing With TURCO W.O. #1

Try this quick, low-cost method of obtaining adhesion for paints on metals. Turco Phosphatizing with W. O. #1 produces a passive, slightly porous surface which is non-reactive to moisture and makes a thoroughly satisfactory base under all land conditions. It is harmless to metals, rubber or glass.

This is the ideal method for treating sheets and large assemblies. It may be applied by immersion, swabbing or spraying and acts as a cleaning agent when used.

No special equipment required for this cheap and speedy process. 25-53

TURCO PRODUCTS, INC.

MAIN OFFICE AND FACTORY
6135 S. CENTRAL AVE., LOS ANGELES, CALIF.
MIDWEST FACTORY
4856 HALSTED STREET, CHICAGO, ILL.

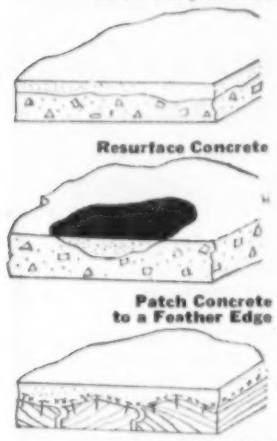
SERVICE REPRESENTATIVES AND WAREHOUSE STOCKS IN ALL PRINCIPAL CITIES

▲ Mention Item NED-2372 when writing ▲

Use "PERMAFLEX" Resurface and Patch INDUSTRIAL FLOORS

Bonds Perfectly—Never Comes Loose

3000 lbs. pressure per sq. in., will not rut



WEARPROOF - DUSTPROOF SLIPPROOF - WATERPROOF RESTFUL—QUIET

Install right over your old Floors, Walks and Drives.

No need to move machinery, finish right up to it. No Chipping. No Dust. No Delay. Install Friday night and Saturday, ready for use on Monday.

Never a failure in over 1,000 installations.

Our Contract Department can do the installation work for you at any rate to 30,000 sq. ft. per day.

AMAZING! UNBELIEVABLE! *Until you try* "PERMAFLEX"

Users include U. S. Steel, Bethlehem, Republic, General Motors, A. O. Smith, Western Electric and Leading Railroads.

Lowest cost and most durable industrial flooring ever invented.

Write for 100 sq. ft. trial offer.

INSTALL COMPLETE 12½c per square foot

PERMAFLEX PRODUCTS COMPANY
1848 North Front Street, Philadelphia, Pa.

▲ Mention Item NED-2373 when writing ▲

TEXTOLITE GEARS

MADE BY GENERAL ELECTRIC

G-E Textolite gears are composed of laminations of a phenolic impregnated cotton duck, processed in a hydraulic press under heat and pressure. They are well known for their exceptional resiliency, silence in operation, strength and long life.

Textolite gears are stable under all normal operating conditions, resist oils, gasoline and solvents. Their low coefficient of friction results in almost negligible wear when run against metal gears.

For further information write for our booklet "Silent Gears," Section J-5, Plastics Department, General Electric Co., 1 Plastics Ave., Pittsfield, Mass.

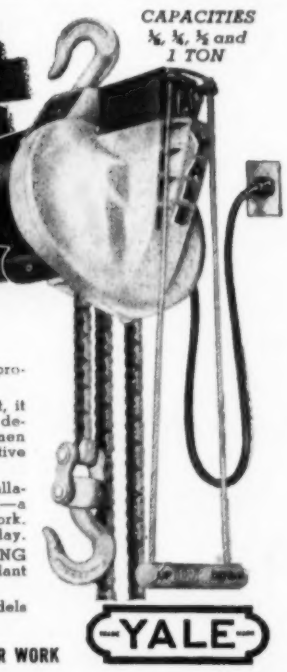
PLASTICS DEPARTMENT

GENERAL ELECTRIC

▲ Mention Item NED-2374 when writing ▲

CAPACITIES ⅛, ¼, ½ and 1 TON

Born to Speed PRODUCTION YALE "MIDGET KING" ELECTRIC HOIST



frees skilled workmen from unproductive tasks.

A small, easily portable electric hoist, it speeds hoisting operations, decreases delays, keeps machines busy, lets workmen and tools concentrate on the productive part of their job.

It needs no special equipment for installation. All it requires is a place to hang—a socket to plug into—and it's ready for work. Operating costs average less than 2c a day.

An asset in any plant the MIDGET KING is a high-speed production tool no plant should be without.

Prices for both A. C. and D. C. models begin at $125.00.

HANG UP — PLUG IN — IT'S READY FOR WORK

-YALE-

THE YALE & TOWNE MFG. CO. Dept. NED 843
4530 Tacony St., Phila., Pa.

Please send us complete information on the Midget King Hoist.

Name .....

Address .....

.....

▲ Mention Item NED-2375 when writing ▲

Prompt Deliveries of
ACCURATE
Sheet Metal Work

SPARE PART BOXES
under Government Specifications

Carefully and rapidly produced in Stackbin's modern plant, Stackbin-made spare parts boxes are meeting Navy requirements and are in use on Navy ships.

Stackbin offers you unusual facilities to fabricate these boxes and other sheet metal products

Behind these special products stand the designing experience and production facilities of a leading maker of parts and materials handling equipment. You can take advantage of their knowledge of sheet metal fabrication. Write Stackbin Corp., 71 Troy St., Providence, R. I., to find out what they can do for you.

STACKBIN SYSTEM
"Stacked and Still Accessible"
STACKBIN CORP., Providence, R. I.

▲ Mention Item NED-2376 when writing ▲

F-M, Fig. 5813 double-suction, motor-driven Centrifugal Pump. Both pump and motor covered as a unit, by one warranty—that of Fairbanks-Morse.

SURE, 10 per cent is too much—and more than 10 per cent is worse! But you *may* be paying a power cost penalty of 10 per cent or more on the operation of old pumps, even if they are as good as the day they were installed. Due to improved mechanical and hydraulic efficiency certain F-M Pumps of today's manufacture cost so much less to operate than older models that it does not pay to retain the old ones.

Use your priority to conserve power needed for increased war production now—and buy today with an eye on tomorrow's profits. Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago. Branches with service stations throughout the United States and Canada.

FAIRBANKS-MORSE
DIESEL ENGINES, PUMPS, MOTORS, GENERATORS, SCALES, WATER SYSTEMS, TAFNI EQUIPMENT, STOKERS, AIR CONDITIONERS, RAILROAD EQUIPMENT
Pumps

▲ Mention Item NED-2377 when writing ▲

VARIABLE SPEED DRIVE

Combining standard variable speed transmission and built-in speed reducer, this reducer-type transmission is compact in size and offers wide range of low speeds. Unit is available in horizontal and vertical enclosed designs and may be mounted in any desired position. Capacities range from 1 to 7½ horsepower. Various sizes produce speed variation from 2 to 1 through 12 to 1 and reduction gears provide ratios up to 6.9 to 1. Speed changes are effected by turning handwheel manually or automatic regulation can be furnished through mechanical or hydraulic mechanisms. Units may be equipped for individual motor drive. Made by **Reeves Pulley Co.**, 1000 N. Wilson St., Columbus, Ind.

▲ Mention Item NED-2378 when writing ▲

HARDENING FURNACE

Of improved design, this size No. 2 model Y high speed, steel hardening furnace has loading shelf at front for convenience of operator. This shelf is of ample size to permit easy arrangement of several furnace loads. Metal guards prevent possibility of contact with live electrical parts.

Use of diamond blocks, which are low in cost, permit scale free, decarburization free hardening of all types of high speed steel alloys. Furnace is pedestal mounted at convenient height for operator. Made by **The Sentry Co.**, Dept. Y, Foxboro, Mass.

▲ Mention Item NED-2379 when writing ▲

SPRING TYPE FASTENING

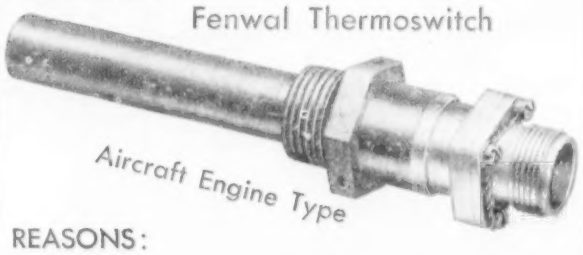
Installation and cleaning of fluorescent fixtures is facilitated by use of Captive Latch, a powerful spring type fastening that holds reflector securely to top housing. Easy to operate, latch requires only quarter turn to remove reflector; no tools are needed. It cannot become loose and drop out because it is integral part of top housing. Fastening is standard equipment on all Sylvania composition reflector fluorescent fixtures. Made by **Sylvania Electric Products Inc.**, Dept. F.W.M., 60 Boston St., Salem, Mass.

▲ Mention Item NED-2380 when writing ▲

PROJECT 1763

PROBLEM: Unstable Thermostatic Control due to Vibration

SOLUTION: Fenwal Thermoswitch



Aircraft Engine Type

REASONS:

The design is such that the element has high spring tension at all times. Consequently the expanding member (the outer shell) has positive, direct control of the contacts resulting in a definite vibrationless break on circuit open or closing.

Maximum rating 10A., 115V & ±.1°F. Sensitivity. Higher capacity and greater sensitivity available. Write.

Fenwal INCORPORATED
70 MAIN ST.
ASHLAND
MASSACHUSETTS

▲ Mention Item NED-2381 when writing ▲

A Working Partner In Your Own Plant

"UTILITY"
Motor-in-Head
GRINDER

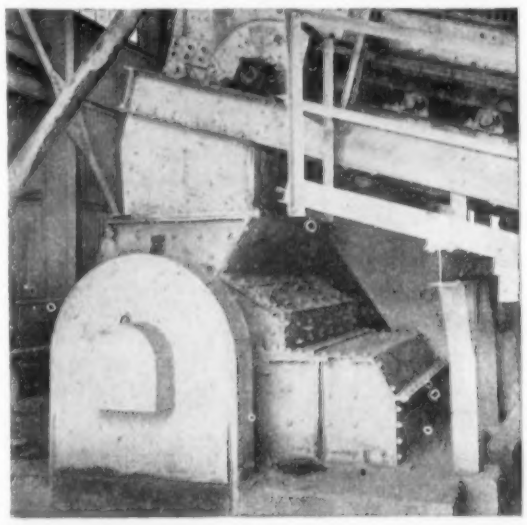
MODEL 500
1 h.p. to 5 h.p.

REASONABLY PROMPT DELIVERIES

For production grinding under continuous service. Wheel Guards adjustable to wheel wear, ball bearing; totally enclosed motor; dust-proof anti-friction bearings; adjustable tool rests; overload protection; quickly removable wheels etc.

THE UNITED STATES ELECTRICAL TOOL CO.
CINCINNATI, OHIO, U.S.A.

▲ Mention Item NED-2382 when writing ▲



BUY JEFFREY

CRUSHERS-PULVERIZERS

The right size unit for the exact size product—single roll, double roll and Flextooth crushers; swing hammer and rigid hammer pulverizers and shredders; coke sizers; disintegrators; metal turnings, garbage and dried sludge grinders. Also feeders, conveyors and bucket elevators.

The Jeffrey Manufacturing Company
952-99 North Fourth St. Columbus, Ohio

Baltimore, Birmingham, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Denver, Detroit, Harlan, Houston, Huntington, Milwaukee, New York, Philadelphia, Pittsburgh, St. Louis, Salt Lake City, Scranton

▲ Mention Item NED-2383 when writing ▲

NEW FLOW RATE INDICATOR
Responds INSTANTLY to Flow Changes

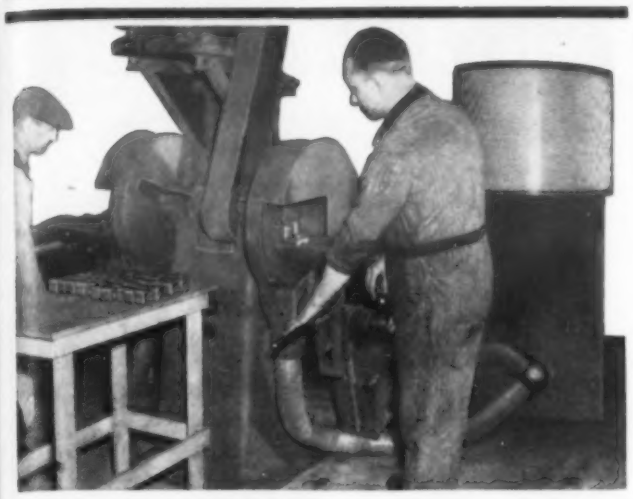
THE NEW Rota-Sight flow indicator tells the operator the instant that the flow changes—even with very low flows. • The indicating rotameter-type float gives a wide range over a short scale length. • The float is visible in opaque liquids. • Rota-Sight warns operator of too high or too low flows. • Easy to install—universal inlet and outlet connections. • Nothing to get out of order. • Rota-Sight is inexpensive. • Piping connections for ½" to 2½".

The Rota-Sight is the modern answer to the demand for a sensitive flow rate indicator, applicable wherever an approximation of flow rate is an operating aid or necessity.

For complete information on the Rota-Sight write for Bulletin 101.

FISCHER & PORTER COMPANY
284 COUNTY LINE ROAD, HATBORO, PA.

▲ Mention Item NED-2384 when writing ▲



STOP DUST with DUSTKOP

Efficient Model 1250 Dust Collectors For large wheel

- Carbide Tool Grinders
- Surface Grinders
- Tool Grinders
- Disc Grinders
- Sanders
- Cut-Offs

DUSTKOPS are compact, portable, entirely self-contained. Model 1250 has 1½ hp continuous duty motor. Spun glass filter is principally an extra safe-guard; seldom requires any attention. Proved in use on 24-hour schedules in many war production plants. Write for Bulletins.

AGET-DETROIT CO.
2050 BOOK BLDG. CADILLAC 3090 DETROIT

▲ Mention Item NED-2385 when writing ▲

Coiled Mechanical Rawhide absorbs shock without fatiguing recoil. Delivers effective, forceful blows without crashing, battering or marring. Speeds assembly, die setting, machine adjustment, motor repair and maintenance work. Keeps production up and spoilage down.

CHICAGO Rawhide MFG. CO.
1127 ELSTON AVE. ★ CHICAGO, ILLINOIS

▲ Mention Item NED-2386 when writing ▲

★ American MonoRail Cranes prove invaluable in hundreds of installations. With structural design greatly simplified, dead weight of the crane bridge is kept at the lowest point consistent with strength. This provides maximum live load capacity and requires less effort to move. Elimination of friction at all points by the scientific use of proper bearings make American MonoRail cranes the easiest of all to handle.

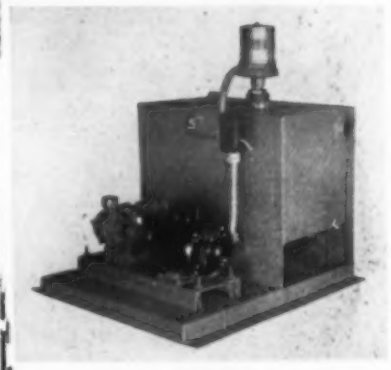
Let an American MonoRail Engineer consult with you.

WRITE FOR Blue Book illustrating hundreds of MonoRail installations.

THE AMERICAN MONORAIL CO.
13116 Athens Ave. ★ Cleveland, Ohio

▲ Mention Item NED-2387 when writing ▲

CONDENSATE RETURN UNITS



Completely prefabricated with all interconnecting piping and wiring installed ready to plug in, series G condensation return units conform to War Department Chief of Engineers specification No. 8672-E revised. They are compact in design, use minimum of critical materials, and will meet variety of requirements for industrial as well as military applications.

Turbine type ball-bearing pump has bronze impeller and stainless-steel shaft with both hydraulic and dynamic balance. Motor is of approved 40 degrees Cent. rise, sleeve-bearing type with flexible coupling connection to motor shaft. Suction lines of Simplex units are provided with flexible type union to take up possible pipe deflection without strain on pump casing. On Duplex units same fitting is supplied in addition to gate valve in each suction line. Model illustrated is of simplex type. Made by **Fred H. Schaub Engineering Co.**, 323 W. Huron St., Chicago, Ill.

▲ Mention Item NED-2388 when writing ▲

GLASS FIBER CABLE HANGER

Developed for use in mines, shipyards and construction projects, this durable glass fiber cable hanger is impervious to moisture and will not rot. Production delays caused by damaged cable are prevented when cable is held up off of floor or ground. Strap will not stretch or shrink. It is capable of supporting approximately 200 pounds. Glass fibers are protected and insulation value increased by heat resisting varnish treatment.

Standard size hanger is 14 inches long by 1½ inches wide. One-half inch metal grommet in each end permits nailing to wooden pillars. Straps may be used to support cable as shown, or they can be wrapped around cable to prevent slippage. Made by **Westinghouse Electric & Mfg. Co.**, East Pittsburgh, Pa.

▲ Mention Item NED-2389 when writing ▲

DO YOU KNOW?

Previously applied for industrial use in analyzing vibration and recording of wide range frequencies in all types of equipment, this recording sound frequency analyzer is now being adapted by the medical profession for experimental purposes. It is claimed to open a new approach to the study of faulty heart action. Made by Western Electric Co., 195 Broadway, New York City.

▲ Mention Item NED-2390 when writing ▲

SPEEDS PRODUCTION! CUTS TIME AND COSTS!

SPEEDY AIR VISE

FAST! POWERFUL! FOOT CONTROLLED!

$24 *Complete with Foot Control Valve, Air Hose and Fittings*

HAND FREE OPERATION! • Foot operation leaves BOTH hands free for fast insertion and removal of work. Vise stays open or closed without constant foot pressure.

PROMPT DELIVERY!

• At last! A powerful pneumatic vise at a remarkably low price! Expertly engineered, SPEEDY AIR VISE is fast in action, hard gripping, husky, easy to operate...just the vise you need to speed up your production. Operates from air line or individual compressor, exerting a grip of 15 times air pressure. Jaw opens up to 3 inches, easily fitted to hold castings, parts, jigs etc. Because of its low cost, can be economically used on every drill press, miller, filer and assembler.

Ask Your Dealer, or Write For Circular D-5

W. R. BROWN CORP., 5720 ARMITAGE AVE., CHICAGO, ILL.

▲ Mention Item NED-2391 when writing ▲

LUBRIPLATE 130-AA is the ideal wire rope lubricant. It has enormous film strength and adhesiveness so it will not squeeze out under pressure. It is impervious to water and moisture and most industrial fumes, hence it prevents rust and corrosion. By doing a better lubrication job, LUBRIPLATE 130-AA enables strands and wires to work with minimum friction, therefore reduces wire fatigue. Let us send you facts and figures about LUBRIPLATE 130-AA. Write today.

LUBRIPLATE DIVISION
FISKE BROS. REFINING COMPANY
Newark, N. J. - Since 1870 - Toledo, Ohio

Write for the name of the dealer nearest you.

LUBRIPLATE
ARRESTS PROGRESSIVE WEAR

▲ Mention Item NED-2392 when writing ▲

Handbook on Higher Vacuum

Free for the Asking

A comprehensive handbook on vacuum practice . . . contains numerous charts, tables of boiling points of water and solvents at various vacuums, a simplified steam conversion table, practical data on installing, operating and maintaining vacuum systems, etc.

An invaluable reference book for engineers, particularly useful with the increasing use of higher vacuum . . . plus a complete catalog of Stokes High Vacuum Pumps, in capacities from 10 to 225 cu. ft. per min., to draw and maintain vacuum within a fraction of a millimeter of absolute. If you do not have a copy on file write for one.

F. J. STOKES MACHINE COMPANY
5964 Tabor Road Olney P. O. Philadelphia, Pa.
Representatives in New York, Chicago, Cincinnati, St. Louis, Cleveland, Detroit. Pacific Coast Representative: L. H. Butcher Company, Inc.

F.J.Stokes FJS Est. 1895

▲ Mention Item NED-2393 when writing ▲

NOW AVAILABLE!

SEPARATE ENGINEERING BULLETINS ON:

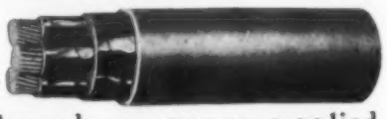
- CARBIDE TOOLS
- CARBIDE DIES
- HIGH-SPEED STEELS
- DIE STEELS
- TOOL STEELS
- DRILL RODS

Check Your Choice!
(OR WRITE FOR SPECIFIC BULLETINS BY NAME)

Firth-Sterling
STEEL COMPANY
McKEESPORT, PA.

▲ Mention Item NED-2394 when writing ▲

CRESCENT
INSULATED WIRE AND CABLE
Helps To Fill A Vital Need



● This is a "Power Age." 90% of American industry depends on power supplied through Electrical Wires and cables. At the CRESCENT PLANT PRODUCTION IS 100% FOR WAR PURPOSES. When the war is over, these same unexcelled production facilities, the same skills and the same time-tested policies will remain to deliver to the Electrical Industry, through regular distribution channels, the wire and cable that will be needed then

CRESCENT INSULATED WIRE & CABLE CO.
TRENTON, N. J.

▲ Mention Item NED-2395 when writing ▲

EXTRA SPEED FOR PRODUCTION'S FLYING FINGERS

The Knurling of Socket Screws originated with "Unbrako" years ago.

"UNBRAKO" KNURLED SOCKET HEAD CAP SCREWS

Fingers firmly grip the knurling—and production rides along in high—when "UNBRAKO" Cap Screws are part of your assembly line. Precision made, "UNBRAKO" also has unbelievable strength. Sizes from No. 4 to 1½" diameter. Write for "UNBRAKO" Catalog—today.

UNBRAKO
Reg. U. S. Pat. Office

STANDARD PRESSED STEEL CO.
JENKINTOWN, PENNA. BOX 581
— BRANCHES —
BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

▲ Mention Item NED-2396 when writing ▲

★ ★ ★ *the New* **ALDRICH-GROFF**
CONSTANT SPEED—CONTROLLABLE CAPACITY VERTICAL TRIPLEX PUMP...

For Services Including...

- BOILER FEED
- DESUPERHEATING
- PIPE LINES
- PROPORTIONING
- PROCESS AND STILL CHARGING
- HYDRAULIC PRESS

For constant speed A.C. electric motor or turbine drive. Low starting torque, with delivery infinitely variable from O to maximum rated capacity. For installations requiring automatic or remote manual control of output or pressure. Sizes from 11 to 100 HP with discharge pressures from 200 to 15,000 p. s. i.

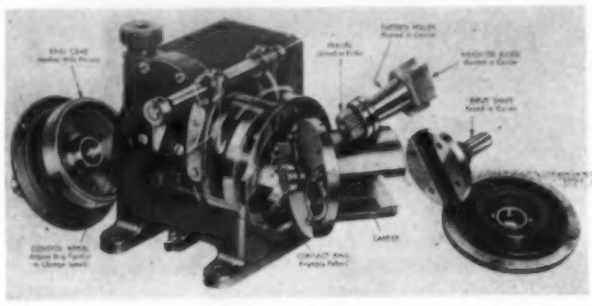
Send for Data Sheet #65

THE ALDRICH PUMP COMPANY
4 GORDON STREET • ALLENTOWN • PENNA.

▲ Mention Item NED-2397 when writing ▲

VARIABLE SPEED DRIVE

To handle heavy duty applications, three new models have been added to this company's standard line of variable speed transmissions. All units employ principle of metallic rolling



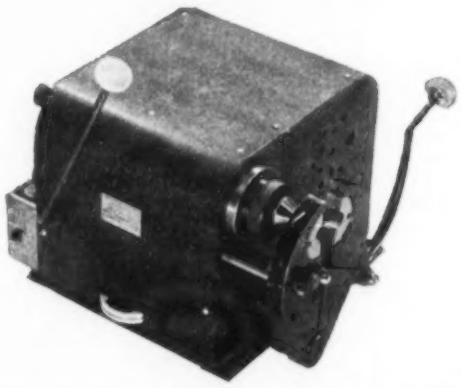
contact to secure desired speed accurately and hold to it closely. Drive uses compound planetary gear system except that non-rotating member is traction ring and engages two tapered rollers at varying diameters. Ring is moved lengthwise of unit to effect speed changes.

Model 55 with input rating of ½ horsepower is designed for V-belt connection on input side. Model 60 is used when motor is coupled or built-in, input rating being ¾ horsepower. Model 110 is designed for normal operation at 1800 revolutions per minute on input side and 300 to 0 revolutions per minute in stepless progression on output shaft. Input rating of latter unit is 1 horsepower. Models 60 and 110 provide equal range on both sides of zero without reversing motor. Made by **Graham Transmissions**, Inc., 2706 N. Teutonia Ave., Milwaukee, Wis.

▲ Mention Item NED-2398 when writing ▲

UNIVERSAL TUBE MACHINE

Squaring, burring, flaring and bead forming on ferrous and non-ferrous tubing is readily accomplished with this Tube Master machine. Particularly adapted to aircraft plant use,

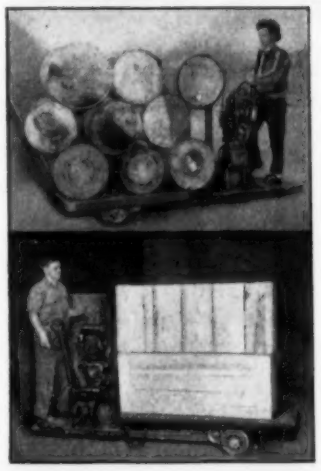


it will work to either AC-811 or AND-10060 specifications. It is designed primarily to speed-up production by eliminating need for hand tools and dies. Universal and constant accuracy is obtained on all operations.

Machine is readily set-up for any particular operation in short time. Ten sets of flaring dies and centers, squaring and burring attachments are standard equipment for tubing ranging from ¼ to 1½ inches outside diameter. Of compact design this unit may be operated on bench or at any other convenient location. Made by **Leonard Precision Products** Co., 1102 Larson Ave., Garden Grove, Calif.

▲ Mention Item NED-2399 when writing ▲

Multiply **MAN POWER!**



The Truck-Man helps multiply man power . . . a low cost, efficient method of conveying loads of one ton or lighter . . . easy to handle, turns in its own length . . . gasoline powered . . . has hydraulic lift.

Send for bulletin; gives complete specifications.

truck-man
a product of
YARD-MAN, INC.
1414 WEST GANSON
JACKSON · MICHIGAN

▲ Mention Item NED-2400 when writing ▲

Here's A Reading "Must"!

Free Manual Tells How to Speed-Up Maintenance Work!

Looking for a quicker, easier way to handle your various commonly-recurring plant maintenance tasks? Then read this NEW, 24-page manual . . .

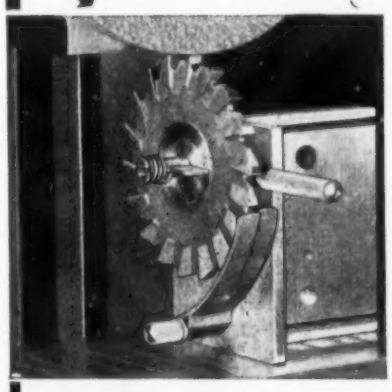
It tells how Oakite Steam-Detergent Cleaning is proving itself a front-line defense weapon in thousands of war plants the Nation over . . . gives facts, figures, case histories on vital cleaning problems. Whether you are cleaning equipment before repair or overhaul . . . or as a regular maintenance and sanitation procedure, you, too, will find valuable assistance in this booklet. Write TODAY for your FREE copy.

OAKITE PRODUCTS, INC., 32G THAMES ST., NEW YORK, N. Y.
Technical Service Representatives in All Principal Cities of the United States and Canada

OAKITE MATERIALS · METHODS · SERVICE — Buy Bonds for Victory — **CLEANING** FOR EVERY CLEANING REQUIREMENT

▲ Mention Item NED-2401 when writing ▲

Milling Cutters GROUND QUICKLY WITH **KUTRITE**



AVOID WEEKS OF DELAY
•
SAVE SKILLED MAN-HOURS
•
SHARP CUTTERS ALWAYS ON HAND
•
ACCURATE, UNIFORM GRINDING ASSURED

★ Now you can grind your own milling cutters, gear cutters, forming cutters, circular saws, etc., right in your own shop, with the new Acro KUTRITE. What's more, almost any good handy man can grind both the ends and sides of cutting edges to exacting requirements—quickly. Why wait WEEKS for cutters that can be ground in MINUTES? Keep your cutters always in prime condition, ready for instant use. Eliminate grinding "bottlenecks". Save time and money. Order KUTRITE today.
See your Jobber or Write Direct for Immediate Delivery!

ACRO TOOL AND DIE WORKS
5326 N. Kedzie Ave. IRVing 8500 Chicago, Ill.
Precision Machinists ● Tools ● Dies ● Metal Specialties

▲ Mention Item NED-2402 when writing ▲

MOTO-CRANE*

"MOBIL-IZES" Material Handling Service for Time and Money Savings

● Why not put your material handling equipment on the same mobile rubber-tired basis as your motor trucks? The Moto-Crane* travels and works on 10 rubber-tired wheels. It is unrestricted by tracks or roadways, can cover all parts of widely scattered yard operations, or serve several plants in one district.

The Moto-Crane has unlimited uses—handling bulk or packaged materials; magnet work; car unloading; plant erection and maintenance. Write today for catalog describing this modern mechanized unit in detail.

UNIVERSAL CRANE DIVISION
THE THEW SHOVEL CO.
LORAIN, OHIO
*Reg. U. S. Pat. Off.

THEW-LORAIN

▲ Mention Item NED-2403 when writing ▲

Dust, Soot, Smoke

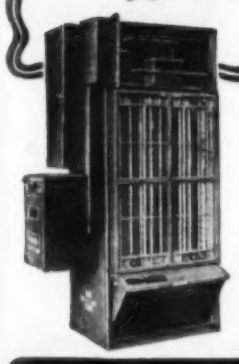
EVEN *Oil Vapors and Welding Fumes*

PRACTICALLY VANISH WHEN THE AMERICAN

ELECTRO-MATIC

SELF CLEANING ELECTRIC PRECIPITATOR

is on the job



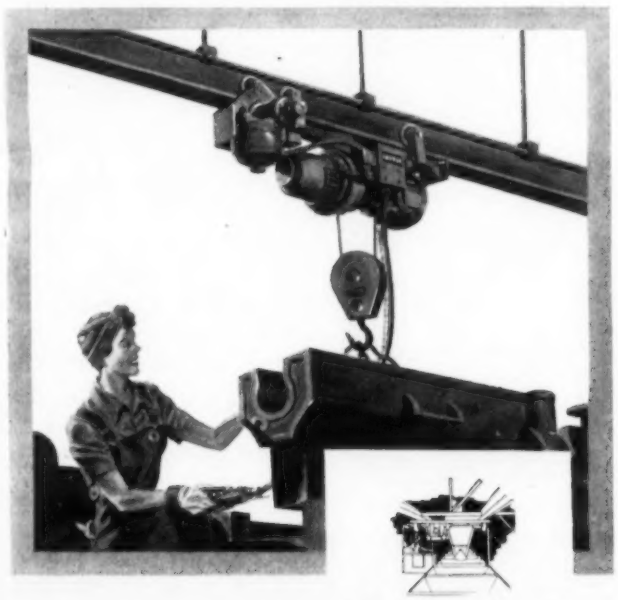
Electrical precipitation—long recognized as the most efficient method of collecting smoke, soot, and fine dust particles—is combined in the AAF Electro-Matic with the automatic self-cleaning viscous impingement filter to provide the most efficient air cleaning ever offered. Send for Bulletin No. 250D. Address 391 Central Avenue.

AAF

AMERICAN AIR FILTER CO. INC.
INCORPORATED
LOUISVILLE, KENTUCKY

▲ Mention Item NED-2404 when writing ▲

HOW TO USE WOMEN TO *Solve the Manpower Problem*



With a Louden cab-operated crane hoist, women can handle any load up to 10 tons throughout an entire plant.

WOMEN are anxious to help win this war in America's factories. But they can't be expected to do the physical labor of men. Hence the solution of many production problems today is a Louden handling system. A woman, a Louden system and a simple control can lift, turn, spot, lower or carry any load from 10 pounds to 10 tons anywhere in your plant. This combination can do many jobs more swiftly and efficiently than any crew of men you could muster. They can handle stores, receiving, unloading, loading, distributing, processing, assembling and shipping. In turning the "bull" labor over to Louden you release people from mere handling to vital productive activities. You speed the flow of materials and step up your rate of production. You go far toward removing the cause of the long-hours production slump. You get materials handling up off the floor and onto the ceiling, making room for as much as 20% more production facilities. And when the war is over, your soundly integrated and highly efficient plant will be ready for competitive production.

Investigate Louden and see how it can help in tapping the relatively untouched reservoir of women power. Write or wire today, The Louden Machinery Company, 545 E. Superior Ave., Fairfield, Iowa.

Women can handle materials easily into, through and out of ovens, spray booths and other processes.

Answers to Four Questions That May Bother You

1. Louden is a *complete* handling equipment line . . . tailored to *your* needs.
2. Made for single departments, small plants or huge factories.
3. Louden can be installed while work goes on.
4. Standardized construction offers reasonable delivery.

Materials Handling Manual FREE!

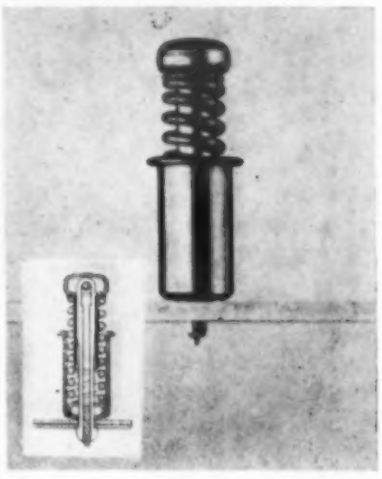
64 pages of facts and photographs, scores of installations. How to handle all kinds of materials, in all kinds of plants. A wealth of man-saving, time-saving, space-saving ideas and methods. Write for free copy today.

LOUDEN OVERHEAD MATERIAL HANDLING SYSTEMS

Untangle Men, Machines, Manufacturing and Material Handling

▲ Mention Item NED-2405 when writing ▲

AIRCRAFT SKIN FASTENER



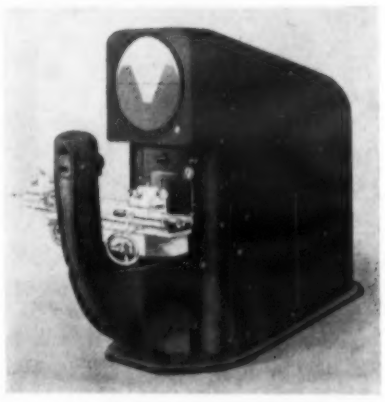
In addition to affording increased factor of safety, this Loxit aircraft skin sheet fastener is also claimed to reduce worker fatigue by 75 per cent and speed operation by 10 per cent. Legs which hold unit in place are of tempered steel for strength and durability.

In use, device is grasped lightly in any standard skin fastener plier. Wedge is inserted in skin sheet hole where it acts as leader, lining up holes. Fastener is then compressed and it locks into place with audible "snap". It is not necessary to hold unit under compression while inserting.

Tool completely fills rivet hole, preventing lateral skin motion in any direction. Vibrations of riveting will not loosen fastener as center wedge action applies centering force evenly in both directions. Coiled tension spring automatically compensates for various sheet thicknesses. Tubular sleeve reinforces and guides plunger. Standard sizes include 3/32, ⅛, 5/32 and 3/16 inch diameters. Made by **Scovill Mfg. Co.**, 39 Mill St., Waterbury, Conn.

▲ Mention Item NED-2406 when writing ▲

OPTICAL COMPARATOR



Accommodating wide range of work and incorporating scientifically correct optical lens system, model P-3 universal optical comparator may be used on parts which are larger than could be handled with standard optical inspection apparatus. Wide field of objective lens, combined with adequate light from microphotographic bulb, makes it possible to project large images clearly, with sharp outline definition and uniform light coverage over entire screen area.

Lens units are available for magnifications of 10X, 25X, 31¼X, 50X, 62½X and 100X. Special lens units having higher magnification can also be obtained. Universal type stage enables operator to place work in various positions and offers flexibility of movement in all directions. Stage travel measurement control devices permit precise readings to 0.0001 inch over entire range. Standard equipment includes graduated projector screen and accessories include adjustable center supports, surface illuminators and right angle work holder. Made by **Portman Machine Tool Co.**, 158 E. First St., Mount Vernon, N. Y.

▲ Mention Item NED-2407 when writing ▲

HOW POR-OS-WAY WHEEL TAMED ARMOR PLATE

(Highlights from actual field report)

THE JOB: Removing average of ¼" from all four edges of ½" and ¾" armor plate (half of which is hardened). Edges were case-hardened by torch-flame cutting.

RESULTS	POR-OS-WAY WHEEL	FORMER WHEEL
Number of pieces per wheel—4 sides per piece.	5	2
Dressing required	None	Every 6 to 7 pieces
Average depth of cut	.008" to .125"	.006" maximum
Number of passes required.	7	15
Number of pieces per month (3 machines, 3 men, 3 shifts)	10800	4320
Monthly increase through use of Por-os-way wheel.	6480 pieces or 2½ times more than previously.	

2 TO 5 TIMES MORE WAR PRODUCTION PER MAN PER MACHINE

A. P. DE SANNO & SON, INC.
446 WHEATLAND STREET
PHOENIXVILLE, PENNSYLVANIA
Offices and Warehouses in Principal cities

Copyr., 1943, A. P. de Sanno & Son, Inc. (*T. M. Reg. U.S. Pat. Off.

POR-OS-WAY* *a new* RADIAC* PRODUCT

▲ Mention Item NED-2408 when writing ▲

Grind your own CUTTERS

High-Speed Steel Cutter Blanks can be ground to suit many special jobs . . . eliminates lost time waiting for cutter orders to be filled.

• DON'T WAIT FOR CUTTERS ON BACK ORDER . . . *Use these Centerless Ground Blanks*

SHORT LENGTH BLANKS—Usable in any spring collet, with body diameters ground accurately to −.0005". Convenient for use on small delicate work, easily sharpened to any desired shape or size. Prices per dozen:

1/10" x 1-1/2" $2.64	5/32" x 1-3/4" $2.86
1/8" x 1-1/2" $2.70	3/16" x 1-3/4" $3.19

Discounts on larger quantities. Order today.

EXTRA LONG BLANKS—For work in deep cavities. By grinding notches in blanks, smaller sizes may be broken off to any desired length. Prices per ½ dozen:

1/10" x 4"–$2.37	1/4" x 4"–$3.96
1/8" x 4"–$2.64	5/16" x 4"–$4.95
5/32" x 4"–$3.30	3/8" x 4"–$5.67
3/16" x 4"–$3.52	1/2" x 4"–$7.39

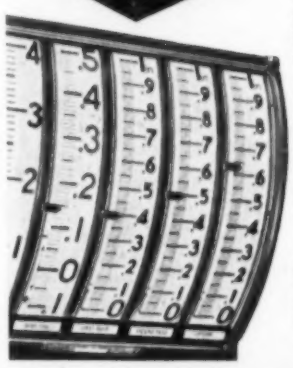
Discounts on larger quantities. Order today.

FREE. Catalog containing other Gorton accessories. Ask for 1317-D.

GEORGE GORTON MACHINE CO.
1103 13TH STREET, RACINE, WISCONSIN, U. S. A.

▲ Mention Item NED-2409 when writing ▲

THIS DRAFT GAGE GAGES DRAFT



You know exactly how much draft—when you look at the Hays Draft Gage; *exactly*—not approximately.

Amazingly tough yet soft and pliable, the colon leather diaphragm withstands constant flexing, yet sensitively records .0025 inch water. It lasts indefinitely—no effects from sudden overloads.

Its dependable accuracy quickly established the Hays Draft Gage as the standard of performance—it was the first of the dry type gages.

Write for Bulletin 40-294—gives you complete information.

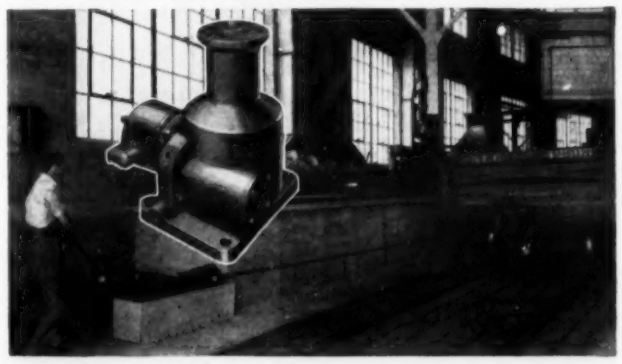
The HAYS CORPORATION
COMBUSTION INSTRUMENTS AND CONTROL
MICHIGAN CITY, INDIANA, U.S.A.

▲ Mention Item NED-2410 when writing ▲

LINK-BELT

ELECTRIC CAR SPOTTER

An Economical Time and Space Saving Unit for Spotting R. R. Cars



Ends Delays, Cuts Costs — Speeds Shipping

One man and a Link-Belt Car Spotter can move from 1 to 6 loaded cars, spot them accurately and quickly. Return the coupon.

LINK-BELT COMPANY, 2410 W. 18th St., Chicago, Ill. 9023
Send copy of Link-Belt Car Spotter Folder No. 1592-A.
Name .....
Company .....
City ..... State .....

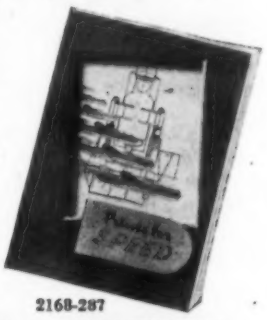
▲ Mention Item NED-2411 when writing ▲

Manpower Advantage...

Whereas a large blue print machine requires two or three operators, Bruning BW (black line) prints can be produced in large volume with only a single operator, and in sheets cut to the exact size of your tracings.

Made in a fraction of the time that blue prints require . . . no washing—delivered automatically dried . . . easier to read and check . . . BW prints are the *modern* way to get things done.

Find out how Bruning BW prints can give you an edge in the present race for production . . . and in the battle for business of tomorrow. Send for a free, illustrated booklet on BW Printing and Developing equipment. Charles Bruning Co., Inc.



BRUNING
SINCE 1897
NEW YORK • CHICAGO
LOS ANGELES
Branches in 14 Principal Cities

2168-287

SENSITIZED PAPERS AND CLOTHS . . DRAFTING AND ENGINEERING SUPPLIES AND EQUIPMENT

▲ Mention Item NED-2412 when writing ▲

STYLE 11 TOOL

KENNAMETAL* steel-cutting carbide tools, because of their greater rupture strength and hardness, withstand wear for longer periods of time. These characteristics of KENNAMETAL will decrease the "down-time" of your machines—they will afford more efficient tool service, so vital to economic production.

Illustrated is a machinist turning a heat-treated 0.40 to 0.50% carbon gear blank with KENNAMETAL tool style No. 11. The gear blank has a face dimension of 1" and diameter of 17-7/16", with a Brinell hardness of 255. This KENNAMETAL tool machined 112 gears; high speed steel tools only machined 60.

In this, as in other operations, KENNAMETAL continued to cut efficiently after other tools had been scrapped.

Write today for the latest KENNAMETAL CATALOG, No. 43B. It contains information you need on styles, applications, and care of KENNAMETAL tools.

KENNAMETAL THE All American CARBIDE

* INVENTED AND MANUFACTURED IN THE U. S. A.

McKENNA METALS Co.
171 LLOYD AVE., LATROBE, PENNA.
Foreign Sales: U. S. STEEL EXPORT CO., 30 Church St., New York
Exclusive of Canada and Great Britain

▲ Mention Item NED-2413 when writing ▲

WOMEN'S SAFETY HELMETS

Weighing approximately 25 per cent less than standard safety hats for men, protector helmets for factory women are molded from vulcanized fiber into one-piece, seamless crown of great strength. Second piece of pre-formed fiber is attached to underside of crown to reinforce it. Instead of usual type of safety hat lining, helmet is provided with hammock which rests directly upon wearer's hair, insuring comfortable fit. Head protector is held in place with adjustable chin strap. It is available in black or tan colors, and in small and medium head sizes. Made by **The Strauss Co.**, 938 Ewart Bldg., Liberty Ave., Pittsburgh, Pa.

▲ Mention Item NED-2414 when writing ▲

CARBIDE TOOL GRINDER

Redesigned so as to permit optional use of either dry or wet grinding methods, this 3-horsepower, 14-inch carbide tool grinder incorporates rigid mounting for work table on either side. Table is graduated and permits 5 degree adjustment toward wheel and 30 degree angle away from wheel. Control is effected by magnetic reversing starter and separate three-button station.

Spindle ends are equipped with heavy steel backing plate for mounting of mechanically mounted cup type grinding wheels. Each wheel is protected by guard with adjustable splash guard. Wet grinding attachment is powered by individual motor drive, controlled by separate toggle switch. Unit is also made in 1-horsepower, 10-inch and 2-horsepower, 12-inch sizes. Made by **The Standard Electrical Tool Co.**, Dept. B-15, 2488 River Rd., Cincinnati, O.

▲ Mention Item NED-2415 when writing ▲

DO YOU KNOW?

Applicable to metal, wood, concrete and many other types of surfaces, Dektred is easily applied and especially adaptable to marine and military equipment. It provides non-skid surface which is resistant to oils, grease, salt and soaps. Made by Goodyear Tire & Rubber Co., 1400 Cartwright St., Akron, Ohio.

▲ Mention Item NED-2416 when writing ▲

Immediate Shipment
SHOP BOXES

STACKING BOXES

No. 601 —10"x16"x6"—18 Gauge—$ **.95 ea.**

An ideal all-purpose shop box. Sturdy all-welded construction. Heavy skids act as a positive stacking lock and re-inforce box at point of maximum wear.

Prices F. O. B. Factory, Philadelphia—Any Quantity!

Order Today—Write, Wire or Phone

AMERICAN METAL WORKS, Inc.
1503 GERMANTOWN AVENUE, PHILADELPHIA, PA.

▲ Mention Item NED-2417 when writing ▲

"I've got an ear for Squeaks- -AND GET RIGHT AT THEM"

By the unique principal of colloidal penetration, Lubri-Tasgon carries an efficient, lasting lubricant into the tightest joints and bearings. It reaches the places that other lubricants don't. Use it alone as a penetrating lubricant, or in combination with other oils for new or light motors or machinery. At leading mill supply houses, or send 10c for sample can. Samuel Cabot, Inc., 1416 Oliver Bldg., Boston, Mass.

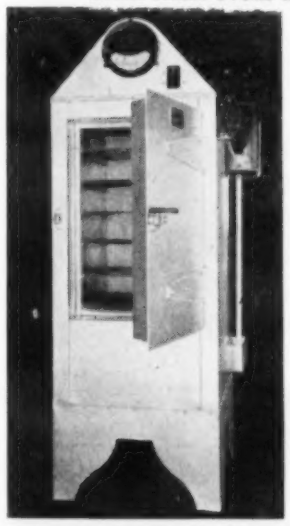
LUBRI-TASGON

Penetrates! Lubricates!

▲ Mention Item NED-2418 when writing ▲

KIRK & BLUM
LABORATORY OVENS

For the research laboratory you'll find Kirk & Blum small ovens accurate and reliable in making tests for various scientific purposes.



These ovens may be heated with gas or electricity (direct or indirect) and can be equipped with indicating or recording temperature control and automatic timing devices. Various sizes and types can be supplied to meet the individual needs.

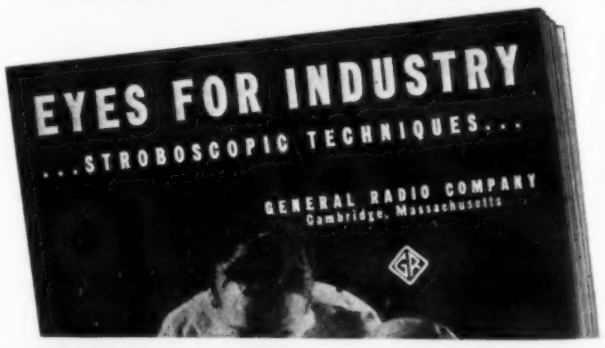
Kirk & Blum Engineers can design ovens that will meet your special requirements.

Write today for further information regarding Kirk & Blum Engineering Service.

AN ORGANIZATION of ENGINEERS and MECHANICS

THE KIRK & BLUM MANUFACTURING CO.
2813 SPRING GROVE AVE. CINCINNATI, OHIO

▲ Mention Item NED-2419 when writing ▲



YOUR COPY is now ready

EYES FOR INDUSTRY contains a clear explanation of how the General Radio Strobotac and Strobolux work; what they will do; slow motion observation; speed measurements and stroboscopic photography. Included are numerous examples of how industry has used them to improve design, speed production and to solve unusual research problems.

This information should be helpful to research, design, production and maintenance engineers, especially those who use stroboscopes to attain or maintain war production standards. Write for Bulletin No. 834.

Because all our facilities are devoted to war projects, the Strobotac and Strobolux are at present available only for war work

GENERAL RADIO COMPANY
Cambridge, Massachusetts
NEW YORK LOS ANGELES

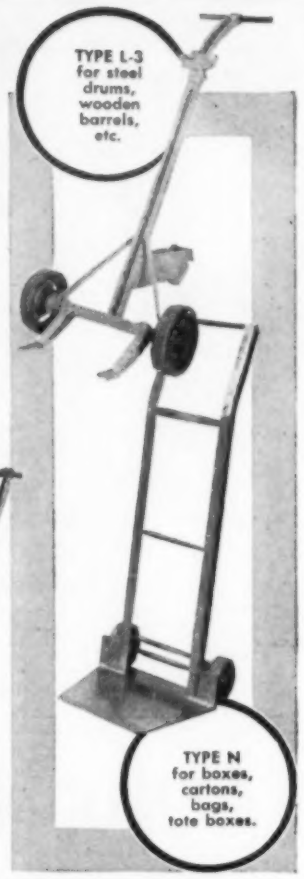
▲ Mention Item NED-2420 when writing ▲

SABIN trucks

FOR EASY HANDLING AND DURABILITY.

Ask Sabin Engineers to show you how the Sabin "One-Man" principle can be applied to your individual trucking needs at a great saving of time and labor.

There is a type of Sabin truck for any material handling job.

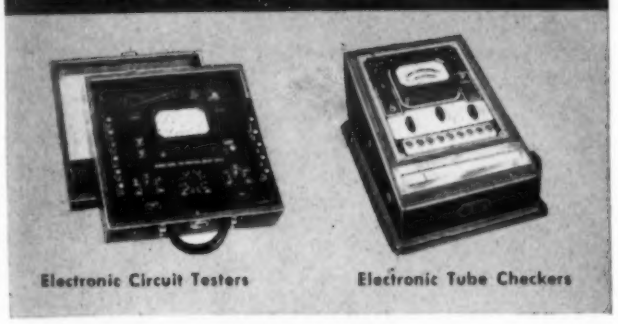


Write for FREE BULLETIN showing all types

THE SABIN MACHINE CO.
6536 Carnegie Avenue
CLEVELAND, O.

▲ Mention Item NED-2421 when writing ▲

FOR ELECTRONICS MEASUREMENTS, TOO,
the Standards are Weston



● In the field of electronics, too, the measurement tools bear the name most familiar to you. For just as WESTON pioneered fundamental electrical measurement, as well as the special measurement needs of radio, so WESTON has provided simple, precise instruments and devices for the problems encountered in electronics research, production and control. Weston Electrical Instrument Corporation, 663 Frelinghuysen Ave., Newark, New Jersey.

• • •

*PHOTRONIC—*A registered trademark designating the photoelectric cells and photoelectric devices manufactured exclusively by the Weston Electrical Instrument Corporation.*

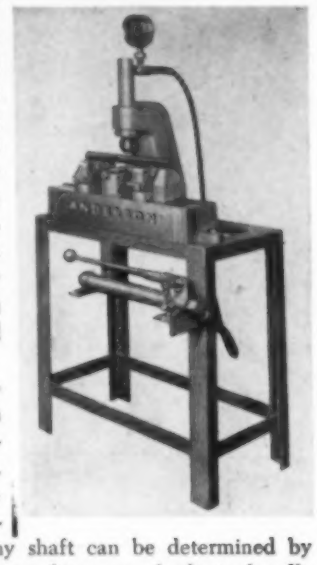
WESTON *Instruments*

▲ Mention Item NED-2422 when writing ▲

L&R MANUFACTURING COMPANY
54-56 CLINTON STREET • Dept. AB • NEWARK, NEW JERSEY

▲ Mention Item NED-2423 when writing ▲

HYDRAULIC HAND PRESS



Eliminating necessity of moving shaft from anvils to centers for checking, model HP-010 hydraulic hand press permits checking and bending operations to be performed in same position. When pressure is released, spring tension on rolls brings shaft free of anvils and free to rotate for checking. Checking rolls are easily adjusted for different lengths of shafts and can be removed altogether if necessary.

Press is equipped with indicator gage calibrated in thousandths of inch for locating high and low spots on shaft. It also has pressure gage calibrated in pounds. Exact tonnage required to straighten any shaft can be determined by operator in short time. First machine was built to handle work up to 1½ inches in diameter. Larger sizes will be built to suit trade's requirements. Unit illustrated is operated by hand hydraulic pump and has capacity up to 20,000 pounds. Made by **Anderson Bros. Mfg. Co.**, 1901 Kishwaukee St., Rockford, Ill.

▲ Mention Item NED-2424 when writing ▲

AIR AND OIL DUCT CLAMP

Built for high pressure hot or cold installations for aircraft, automotive, tank or marine engines and assemblies, this air and oil duct clamp has positive equalized circumferential loading that exerts equal pressure at every point. Its diameter sizes of 1⅜ to 38 inches conform to any convex surface, whether square, oblong, circular or triangular. Design permits clamp to be quickly and easily wrapped around hose and duct section without removal and tightened desired amount with one hand. It weighs substantially less than average clamp of same strength, it is claimed. Made by **Marman Products Co.**, Dept. NED, Inglewood, Calif.

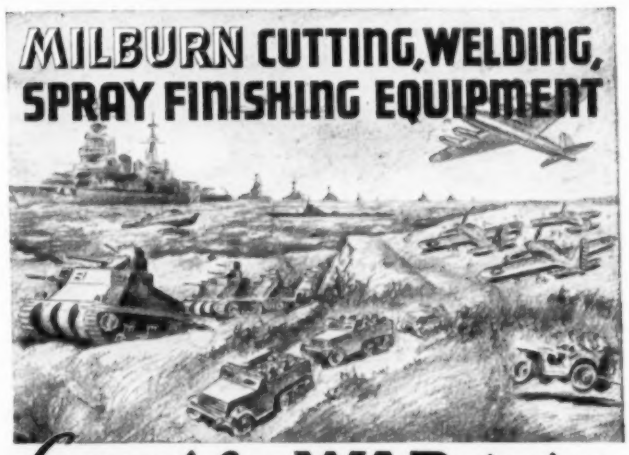
▲ Mention Item NED-2425 when writing ▲

DO YOU KNOW?

Explosive rivets, developed approximately two years ago for riveting aircraft sections which were accessible for only one side, are now being exploded by radio frequency energy. This method, adaptable only to large scale production, replaces use of electric riveting iron which is still preferred for small scale work. Announced by E. I. du Pont de Nemours & Co., Wilmington, Del.

▲ Mention Item NED-2426 when writing ▲

MILBURN CUTTING, WELDING, SPRAY FINISHING EQUIPMENT



Geared for WAR *today —or* PEACE *tomorrow*

Through two wars and for almost half a century, The Alexander Milburn Company has been serving Government and Industry. Milburn Equipment may be relied upon for superior, dependable service under stress of the most adverse conditions. Write for Catalog.

The ALEXANDER MILBURN Company

1423 W. BALTIMORE ST., BALTIMORE, MD.

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For Top-Speed War Production

USE the best quality packings, gaskets and oil seals. Standardize on GARLOCK. They give long, dependable service and help you avoid frequent shutdowns.

THE GARLOCK PACKING CO.
PALMYRA, NEW YORK

In Canada: The Garlock Packing Company of Canada Limited, Montreal, Que.

GARLOCK

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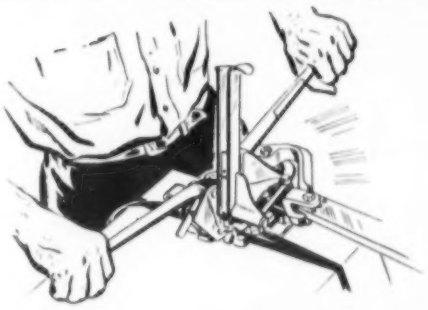


GET YOUR WAR PRODUCTS "THERE" SAFELY

By using Acme Steelstrap, you are assuring maximum protection every step of the way. It meets all Federal Strapping Specifications—and is made in all sizes specified by the authorities. Applied with Acme equipment, Acme Steelstrap saves time—helps to keep the shipping room in step with production.

Acme field men have had wide experience in solving shipping and packing problems for many types of war products. They are well versed in helping shippers fulfill government requirements. They stand ready to help you in making your shipments "Bound to Get There." Write, phone or wire the nearest Acme office. Of course, there is no obligation.

ACME STEEL COMPANY
2822 ARCHER AVENUE, CHICAGO, ILLINOIS
Branches and Sales Offices in Principal Cities

Look for Acme Steel on the Seal

▲ Mention Item NED-2429 when writing ▲

Just Published! To Help SPEED UP WAR WORK

Tells all about Blackhawk's famous time and labor-saving Hydraulic Equipment.

Shows big new ideas to help you "beat the schedules."

HYDRAULIC HAND JACKS — in capacities of 3, 5, 8, 12, 20, 30 and 50 tons — all one-man operated.

GAUGE-EQUIPPED JACKS — most economical and portable testing equipment for the field, shop and laboratory.

WHEELED SERVICE JACKS — for maintenance and parking of material handling vehicles.

REMOTELY CONTROLLED JACKS—in capacities of 7, 10, 20 and 50 tons for doing 1001 assembly, maintenance and repair jobs in safety.

PORTO-POWER PIPE BENDERS — portable, for bending pipe and rigid conduit up to 4" in diameter, right on the job.

BLACKHAWK

BLACKHAWK MFG. CO., Dept. M1353 Milwaukee, Wis.
Rush your new Bulletin V-43 on Blackhawk Hydraulic Equipment for speeding up war work.

Name.....

Company.....*Address*.....

▲ Mention Item NED-2430 when writing ▲

You Can Ream Hard – Tough – Abrasive Alloys and Plastics

with "HARDSTEEL" REAMERS

A Cleveland manufacturer solved the almost impossible job of putting a blind hole 1⅝ in. diameter and about 5 in. deep in tough, highly abrasive heat-treated aluminum alloy bomb rack hinge castings, using "HARDSTEEL" Reamers and taking off .015 in. of metal on a side while holding tolerance to .002 in.

Developed to drill hardened steels of Rockwell C 40 or higher, "HARDSTEEL" is now made in reamers, tool bits and special tools for working abrasive alloys and plastics. Try it. Note its longer service per grind—faster cutting action because of extreme edge hardness—its ease of grinding on any wheel.

Write for "HARDSTEEL" operator's manual. It's free.

BLACK DRILL CO. • 5005 Euclid Ave., Cleveland, O.

You Harden It—We'll Drill It

"HARDSTEEL"
DRILLS • REAMERS • TOOL BITS • SPECIAL TOOLS

▲ Mention Item NED-2432 when writing ▲

New Bench Model
Automatic Bucker
For Production Riveting

AERO TOOL COMPANY • BURBANK, CALIFORNIA

▲ Mention Item NED-2433 when writing ▲

Nail up to 12 NAILS at once, in any pattern! New automatic machines, serving now in many war jobs, will serve in peacetime jobs later. Write for catalog.

FOOD MACHINERY CORPORATION
Riverside, California
"BOX-MAKING MACHINES SINCE 1905"

▲ Mention Item NED-2434 when writing ▲

CONTROLLED TURNSTILE

Exact check on employees entering or leaving industrial plants is provided by this employee check-controlled turnstile. System used can be designed to meet individual requirements of payroll auditing departments, with methods to meet conditions imposed by existing needs and circumstances.

In a typical system, each employee is issued a check with his payroll number stamped on it. To gain admission to plant or leave, each employee must deposit his numbered check in coin slot of turnstile at plant entrance. This unlocks turnstile to admit employee and automatically records his entrance.

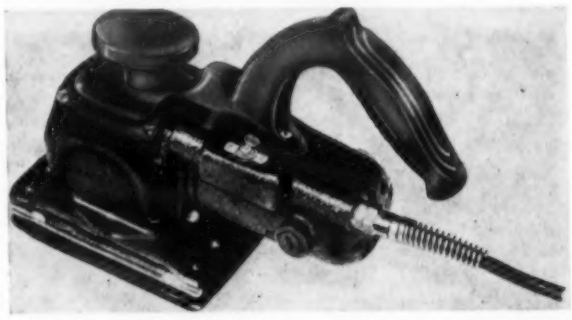
Checks are locked in compartment. At starting time, guard closes passage to turnstile and late employees must surrender checks to guard, sign arrival time slip and enter through manually controlled turnstile. While shift is at work, checks are removed from compartment and record is made of all who entered on time. Before leaving plant, two checks are issued to each employee.

This system helps avoid payment of unearned wages, employees neglecting to check themselves in or out of plants, tampering with card records and mistakes in recording on wrong card. Made by **Perey Turnstile Co.**, Suite 402, 101 Park Ave., New York City.

▲ Mention Item NED-2435 when writing ▲

RECIPROCATING SANDER

Providing smooth, high speed reciprocating action, Nedco model R sander has many applications in aircraft, tool and die, and wood working industries for finishing jobs which are slow



and difficult to do by hand. Sander is so designed that there is no violent vibration or lost motion although motor operates at speed of 3000 oscillations per minute. Equipped with hand grips, balanced weight and smooth action allow even pressure on work with only guidance necessary by worker. It can be used by inexperienced women workers throughout shift without excessive fatigue.

Unit is supplied completely ready to plug in nearest outlet and is rugged enough for continuous production work. Motor is easily removed without disturbing drive assembly. Accurate assembly of ball bearing drive mechanism assures low maintenance cost. Made by **The Lintern Corp.**, Nedco Div., 42 Lincoln Ave., Berea, O.

▲ Mention Item NED-2436 when writing ▲

Censor.. OF PRODUCTION PRACTICE

Checking grain size of steels in Fairfield Metallurgical Laboratory

FROM start to finish Fairfield gears are subjected to exhaustive tests and examination. They are made on the finest equipment available, heat treated under extremely close control, painstakingly inspected, tested on gear laboratory equipment and built to meet the highest standards.

Typical of Fairfield's extensive facilities is the metallurgical lab shown above. Here is the censor of production practice. Gear materials and finished gears must live up to this department's requirements.

Fairfield customers, among the leading manufacturers of civilian and war machinery, know that they can rely on Fairfield gears to match their own standards of quality production.

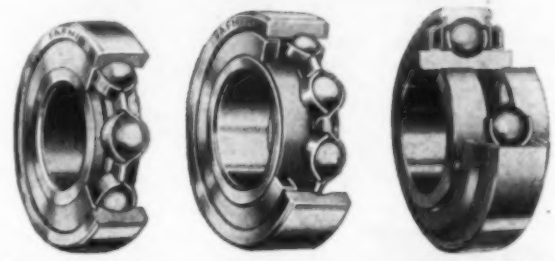
FAIRFIELD For FINE GEARS

FAIRFIELD MANUFACTURING COMPANY
317 South Earl Avenue • Lafayette, Indiana

▲ Mention Item NED-2437 when writing ▲

The FIRST place to look for SEALED and SHIELDED Ball Bearings . . .

FAFNIR!

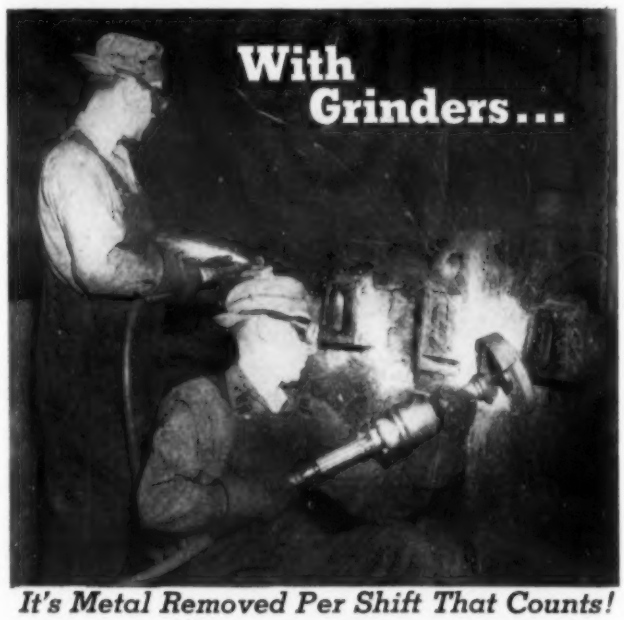


Grease Shield Type — Felt Seal Type — "Mechani-Seal"

Whatever your problem of keeping dirt out, grease in, Fafnir offers all types of shielded and sealed ball bearings. Unbiased recommendations will be made for the type of protected bearing best suited to your particular requirements. The Fafnir Bearing Company, New Britain, Conn.

FAFNIR *Ball Bearings*
THE BALANCED LINE • • FOR ORDNANCE, AIRCRAFT AND INDUSTRIAL MACHINERY

▲ Mention Item NED-2438 when writing ▲



It's Metal Removed Per Shift That Counts!

With Ingersoll-Rand "Multi-Vane" Grinders you get maximum grinding efficiency. Their design incorporates three most important features—great power—light weight—and sensitive control. With these modern air tools your operators can do more work with less fatigue — remove more metal in less time.

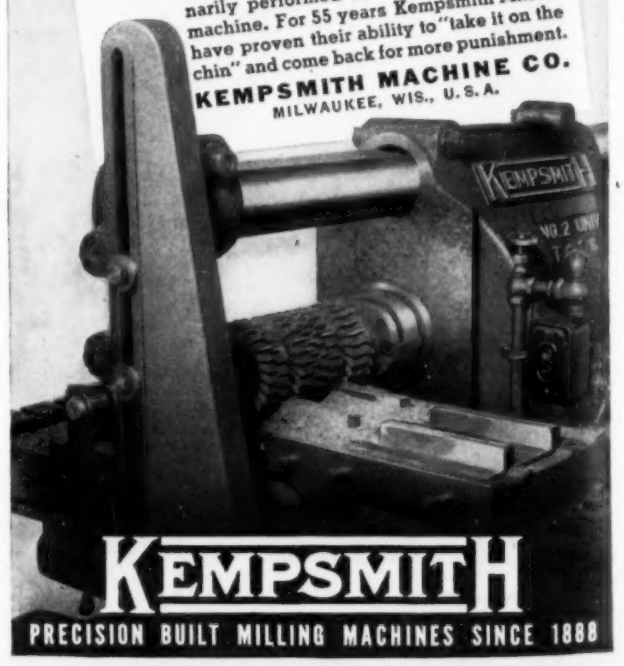
Ingersoll-Rand
11 BROADWAY, NEW YORK CITY

▲ Mention Item NED-2439 when writing ▲

7 SURFACES Milled SIMULTANEOUSLY

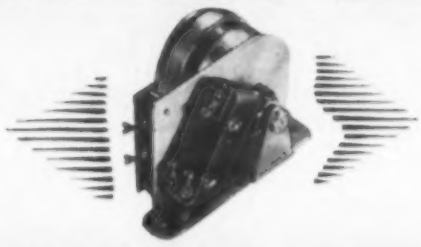
Where ruggedness is required, you can always depend on a Kempsmith Miller. This No. 2 Universal is milling a semi-steel vise body . . . all seven surfaces simultaneously . . . a job ordinarily performed on a heavy duty plain machine. For 55 years Kempsmith Millers have proven their ability to "take it on the chin" and come back for more punishment.

KEMPSMITH MACHINE CO.
MILWAUKEE, WIS., U. S. A.



KEMPSMITH
PRECISION BUILT MILLING MACHINES SINCE 1888

▲ Mention Item NED-2440 when writing ▲



DUNCO RELAY-TIMERS

SYNCHRONOUS MOTOR-DRIVEN TYPES

New developments in Dunco Recycling Time Delay Relays (Type PS) have resulted in units ⅓ the size of previous "compact" timers, and having 100% ball-bearing clutch and cam members.

Another important Dunco Timer development of different construction is the Type PSY1 illustrated above. This is an exceptionally compact unit, and the contact closure time is continuously adjustable from 0 to 100% of the cycle time. It operates continuously at 1 cycle per minute. A copy of the 48-page Dunco Catalog and Relay Data Book will gladly be sent on request to relay users.

WRITE TODAY!

STRUTHERS DUNN, INC.
1321 ARCH STREET, PHILADELPHIA, PA.

▲ Mention Item NED-2441 when writing ▲

Metal Waste Reduced with
SHENANGO-PENN
Centrifugal Castings

BECAUSE only small allowances for finishing are required, there is less wastage of metal when cast centrifugally by Shenango-Penn than with other methods. That means lower machining costs and quicker production of the finished part. Want more information on our products, alloys and facilities? Then write for Bulletin No. 143 today.

SHENANGO-PENN

SHENANGO-PENN MOLD COMPANY
805 West Third Street, Dover, Ohio
Executive Offices: Pittsburgh, Pa.

▲ Mention Item NED-2442 when writing ▲

CRESCENT LO-LIF-TOER
Price Shatters All Tradition!

$1750
INCLUDING
TRUCK • BATTERY • CHARGER
f.o.b. Lebanon, Pa.

Here's a new low in the cost of equipment for motorized materials handling! The Crescent Lo-Lif-Toer handles loads up to 2500 pounds. Operator never dismounts to load, lift or unload. Write today for new, illustrated Lo-Lif-Toer folder . . . it's free!

LO-LIF-TOER TRUCKS CRESCENT TRACTORS

CRESCENTIZE YOUR HANDLING

CRESCENT TRUCK COMPANY
1050 Willow St. Lebanon, Pa.
Industrial Truck and Tractor Specialists for More Than 25 Years

▲ Mention Item NED-2443 when writing ▲

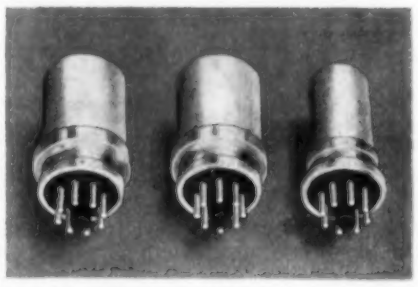
MECHANIC'S LIGHT

Originally designed to illuminate fuselage interiors of large aircraft during construction, double-circuit mechanic's light with receptacles for plugging in small power tools and additional fixtures is being adapted to other industrial uses. As many as four lights can be connected in line to maximum of 60 feet from single outlet.

Two models are available; 24-inch unit containing two 20-watt lamps, and 48-inch unit containing two 40-watt lamps. Both units operate on either 50 to 60 cycle current. Brackets for hanging and hinged wire lamp guard are standard equipment. Twistlock fittings on plug and receptacle are available at extra cost. Prompt delivery is offered by manufacturer. Made by **Lumidor Mfg. Co.**, 3120 East Pico Blvd., Los Angeles, Calif.

▲ Mention Item NED-2444 when writing ▲

ELECTROLYTIC CONDENSERS



Of improved design, plug-in type dry electrolytic condensers are recommended for elimination of low frequency ripple ranging from 2 to 100 cycles. This sealed unit can be easily mounted or removed. Of small size and light in weight, it will take surges in excess of rating. Units operate efficiently under adverse temperature and climatic conditions. Made by **Sprague Specialties Co.**, 343 Beaver St., North Adams, Mass.

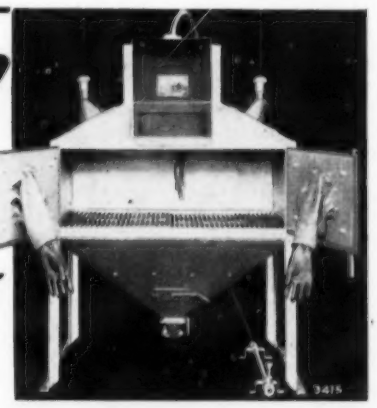
▲ Mention Item NED-2445 when writing ▲

COIL LIFTING DEVICE

Handling coils of strip has been facilitated by lifting device which is readily adjustable for wide range of coil sizes. It is particularly designed for handling coils in horizontal position without first raising coil, since no part of lifter is underneath coil. Lifter is entirely non-magnetic. It can be used for brass, copper, aluminum or steel coil and is operated on any crane or hoist without need of special equipment. Low headroom required increases storage capacity and also simplifies conveying of material from storage to presses. Made by **Never-Slip Safety Clamp Co.**, Mamaroneck Ave. and Elliott St., Mamaroneck, N. Y.

▲ Mention Item NED-2446 when writing ▲

SLY Sandblast Equipment



The Complete Line
Blast Rooms
Blast Mills
Blast Tables
Blast Tanks
Blast Cabinets

Compressed Air or Centrifugal Types

A Sly Blast Cabinet, 30" x 48". Compact, inexpensive. Used for thorough cleaning of small or intricate parts: tools, gears, screw machine products, heat treated parts for the automotive and aeronautical industries. Often employed as an auxiliary to larger units.

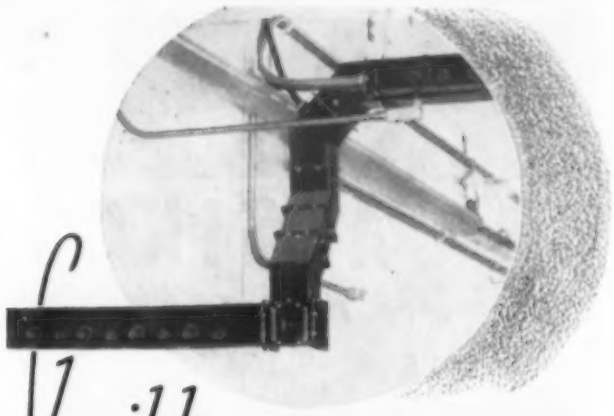
Sly Sandblast equipment solves many problems where thorough cleaning is necessary. The Sly line is complete—units for every operating requirement. Uses either sand or metal abrasive (shot or grit).

All equipment is backed by our 67 years' experience in this field.

Give us complete information on your problem so that we may make recommendations on one of the many available standard units.

THE W. W. SLY MANUFACTURING CO.
4748 Train Avenue *Cleveland, Ohio*
Branch Offices in Principal Cities

▲ Mention Item NED-2447 when writing ▲



flexible POWER DISTRIBUTION WITH SQUARE-Duct

Maximum flexibility in locating and relocating machines. Knockouts every three inches permit connections through short runs of conduit. In addition to five-foot lengths, wide variety of elbows and fittings facilitates running SQUARE-Duct around pipes, beams and corners.

SQUARE-Duct's initial cost is practically the same as for conduit wiring. Installation cost is substantially lower and salvage practically 100%. Get complete and illustrated details. *WRITE FOR BULLETIN 6000*

SQUARE D COMPANY
SWITCH AND PANEL DIVISION
6060 RIVARD ST., DETROIT, MICH

▲ Mention Item NED-2448 when writing ▲

COMMERCIAL SHAPE BOOK

#4

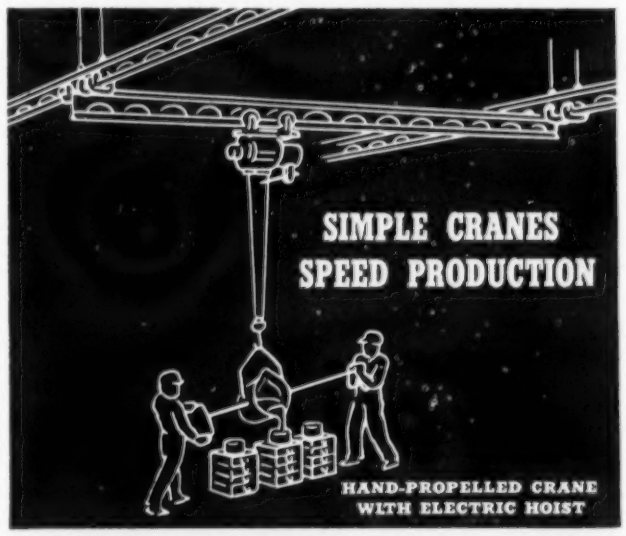
We mentioned our Shape Book #4 in January advertising, and mailed out a lot of them, but maybe there are P.A.'s and designers who have not a copy—we still have some left.

It lists the pressed steel shapes that we make and sell without the usual pressed steel die or tool charges.

LET US TELL ABOUT THIS SERVICE
WRITE FOR SHAPE BOOK #4

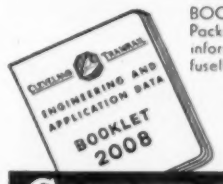
THE COMMERCIAL SHEARING AND STAMPING COMPANY.
YOUNGSTOWN · OHIO · U.S.A.

▲ Mention Item NED-2449 when writing ▲



In many plants simple overhead cranes can do more to speed production than any other factor for the expenditure involved. Cleveland Tramrail builds cranes and overhead materials handling systems to suit every requirement.

GET THIS BOOK!
BOOKLET No. 2008
Packed with valuable information . . . Profusely illustrated.



CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
1143 E. 283rd ST., WICKLIFFE, OHIO

CLEVELAND TRAMRAIL

▲ Mention Item NED-2450 when writing ▲

DIE CASTINGS
ZINC or ALUMINUM

We now have additional capacity in our new, modern plant available for greater production of zinc and aluminum die castings. Highest quality. Good deliveries—on schedule. Send prints or samples for quotation.

CONGRESS DIE CASTING DIV.
CONGRESS TOOL & DIE CO.
3752 East Outer Drive Detroit, Mich.

▲ Mention Item NED-2451 when writing ▲

▲ Mention Item NED-2452 when writing ▲

Hammond
CARBIDE TOOL GRINDERS

NEW 6"

BELTED MODEL

For fast and accurate silicon carbide or diamond wheel grinding the new Hammond Model 6-B Carbide Tool Grinder is multi V-belt driven. V-belt drive plus precision spindle dampens motor vibration and provides true, smooth running wheels. Wheels wear longer and grind faster because the Hammond 6-B gives you velvet-smooth operation. Write for Bulletin No. 202.

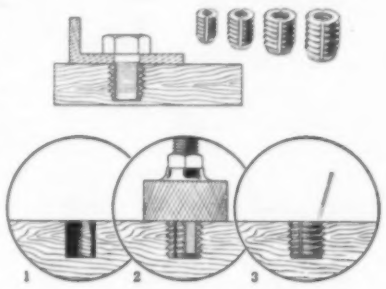
ANY ELECTRICAL SPECIFICATIONS AVAILABLE

Hammond Machinery Builders INC.
KALAMAZOO, MICHIGAN
1623 DOUGLAS AVENUE
EASTERN BRANCH - 71 WEST 23RD STREET, NEW YORK, N. Y.

▲ Mention Item NED-2453 when writing ▲

THREADED INSERTS

Designed for use in wood and metal fabrication such as used in production of plastic-plywood airplanes, Asco inserts require only three steps for installation. This screw-in type blind anchor insert permits bolting of metal to wood without need for going all the way through wood.

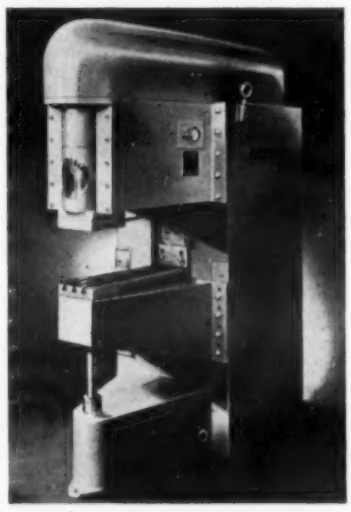


No threading or countersinking is necessary because insert taps its own thread in wood. Only one hole is bored in preparation for installation and two ordinary brads are used to lock insert in position. Special wrench is used in hand brace or electric drill for inserting this device.

Inserts which are available in four standard sizes may also be used in plastics or soft metals, by tapping necessary threads and drilling locking brad holes. Insert may also be molded directly into plastic. Made by **Aircraft Specialties Co.**, Dept. N, 601 S. Anderson St., Los Angeles, Calif.

▲ Mention Item NED-2454 when writing ▲

PRESS TYPE WELDERS



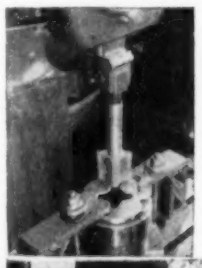
Four basic types of press or projection type resistant welders comprise line of standard machines for light, medium, heavy and extra-heavy duty application. Each type is available in from 4 to 6 kilovolt-ampere capacities and variety of throat depths. They may be either air operated, motor driven or hydraulically operated. All models have universal T-slot platens for easy mounting of fixtures and dies. They have double cooling water manifolds in base of machine. For motor operation, power is supplied by standard induction motor through variable speed drive, reduction gearing and clutch. Double acting cylinders are mounted in head of air operated machines. Welders are designed for 50/60 cycle supply and 220, 440 or 550 volts, as standard. Special machines are available for other frequencies. Made by **Progressive Welder Co.**, 3025 E. Outer Drive, Detroit, Mich.

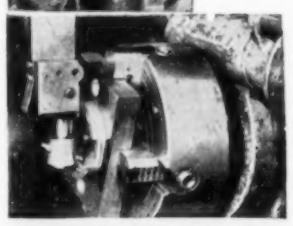
▲ Mention Item NED-2455 when writing ▲

DO YOU KNOW?

By adding an automatic rivet feeder to standard rivet guns, aircraft riveting is speeded up radically. This injector eliminates both lost motion and lost rivets in aircraft applications. Operator's hands are free to perform riveting operation. This riveting yoke developed by Vultee Aircraft, Inc., Manufacturing Research Dept., Vultee Field, Calif.

▲ Mention Item NED-2456 when writing ▲





4 of the many ways SLOTMASTER can be used to save TOOLS & SETUPS

Left: Set-up for lapping deep impression die.

Below: Set-up for cutting an internal gear

SLOTMASTER can be used on any round or flat-on round over-arm milling machine and will do precision work that normally requires a multi-thousand dollar machine (all of the working parts are of tool steel, heat treated). It takes but little time to change over from one head to the other . . . the stroke of the ram is adjustable from 0 to 4" . . the speeds range from 50 to 250 s.p.m. The tool holder is of the clapper box type and can be turned in any position. . SLOTMASTER comes complete with pulleys, motor, mounting bracket etc. . . .Send for 4-page catalog—give specifications of the milling machines you wish to equip. *Immediate deliveries on high priorities.*

EXPERIMENTAL TOOL & DIE CO.
12611 Greiner
Detroit, Michigan

Below: Conventional set-up on a round over-arm milling machine; thumbnail shows set-up for cutting a spline.

▲ Mention Item NED-2457 when writing ▲

●This is the business end of a powerful Diesel engine.

To connect that coupling, old-style lock fastenings wouldn't do. They couldn't both lock and be tightened to spread the load evenly. So studs failed.

The solution shows in the photo—Elastic Stop Nuts. With these fastenings, uniform pressure was obtained as well as complete security against nuts working loose.

In the peacetime production to come, equally puzzling problems will plague manufacturers.

And we are prepared to help. Our engineers who today are solving war production problems will be ready to share their wide experience with you.

Whenever you have a fastening job please let us know.

ELASTIC STOP NUTS
Lock fast to make things last
ESNA TRADE MARK
ELASTIC STOP NUT CORPORATION OF AMERICA
UNION, NEW JERSEY

▲ Mention Item NED-2458 when writing ▲

PIPING TRAINEES LEARN FASTER FROM THESE POINTERS . . .

Trainees get practical aid from "Piping Pointers,"—a Crane wartime service aimed at keeping industrial pipe lines flowing at peak efficiency. These bulletins are full of *do's and don'ts* and *rights and wrongs* of sound piping practice. They show proper valve selection—installation short-cuts—correct repair procedures—substitutions to solve equipment shortages—and safety hints. They're speeding worker training in hundreds of plants.

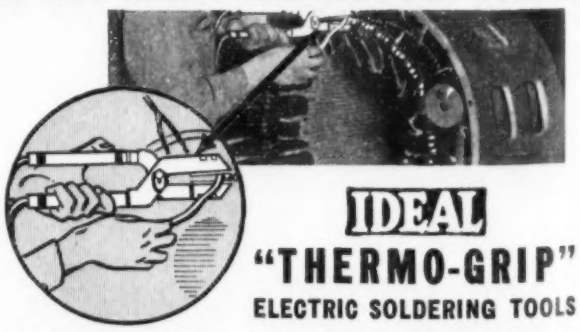
FREE TO ANY PLANT—Faster training of workers for better maintenance of piping is a vital *must*. Get your supply of "Piping Pointers" from your Crane Representative, or by writing to: Crane Co., 836 So. Michigan Ave., Chicago, Ill.

ARMY E NAVY

CRANE VALVES

▲ Mention Item NED-2459 when writing ▲

MORE HEAT . . . *FASTER*
FOR NEW HIGHER MELTING POINT SOLDERS



IDEAL
"THERMO-GRIP"
ELECTRIC SOLDERING TOOLS

The fast acting resistance element of THERMO-GRIP SOLDERING TOOLS causes the part touched to heat almost instantly.

IDEAL "THERMO-GRIPS" are easy to use . . . require no special training. Pliers, held in one hand, grip work firmly leaving other hand free to hold solder wire. Safer; no open flame hazard.

COMPLETE LINE OF SOLDERING TOOLS

"Thermo-Grips", are not ordinary soldering irons but a group of specialized tools, each designed to do a specific job . . . BETTER.

PROMPT DELIVERY

Write for FREE Detailed Literature

IDEAL COMMUTATOR DRESSER CO.
1032 Park Avenue Sycamore, Illinois
Sales Offices In All Principal Cities
In Canada: Irving Smith, Ltd., Montreal, Quebec.

▲ Mention Item NED-2460 when writing ▲

WHAT'S THE HOTTEST SPOT IN AN AERIAL DOG FIGHT?

It's the engine of the plane! To function smoothly, its moving parts must be ground and finished with split hair precision. Valve stems, pistons, shafts and similar parts are accurately ground by a centerless grinding process which Carborundum helped to develop.

Because of the vital part grinding plays in war production, correct care and use of grinding equipment is a wartime must. Follow carefully the manufacturer's recommendation on grading, operating speed and use. Every grinding wheel is a "Weapon for Production"; please use it wisely for maximum effectiveness.

CARBORUNDUM
ABRASIVE PRODUCTS

Sales Offices and Warehouses in New York, Chicago, Philadelphia, Detroit, Cleveland, Boston, Pittsburgh, Cincinnati, Grand Rapids
(Carborundum is a registered trade-mark of and indicates manufacture by The Carborundum Company)

THE CARBORUNDUM COMPANY, NIAGARA FALLS, N. Y.

▲ Mention Item NED-2461 when writing ▲

VICKERS
SOLENOID OPERATED VALVES

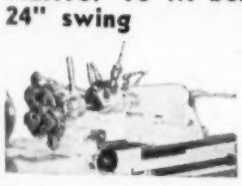
Provide means for remote electric control of hydraulic operating cycles. Compact and easily installed, they are available in standard pipe sizes from 1/4" to 3" and for pressures up to 2000 lbs. per sq. inch. Write for installation and operating data, mentioning type of valve operation and capacity required.

VICKERS Incorporated
1456 Oakman Blvd. • DETROIT, MICHIGAN

▲ Mention Item NED-2462 when writing ▲

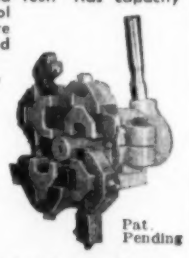
DON'T WAIT FOR TURRET LATHES

Convert any engine lathe into a turret lathe in 15 seconds with JEFFERSON TURRET ATTACHMENTS. To fit bench lathes and lathes up to 24" swing

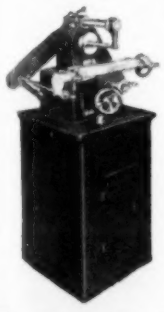


● This new modern TOOL-POST TURRET (below, right), made in 2 sizes, designed to increase production on engine lathes. Easily mounted on cross slide or compound rest. Has capacity of 4 standard tool holders which are easily inserted and rigidly held.
6 Days Delivery

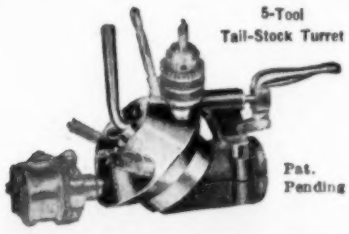
● Then there's the completely modernized 5-tool TAIL-STOCK TURRET (below, right), made in 4 sizes to fit small bench lathes and lathes up to 24" swing. Also the adjustable PULL-FEED LEVER. Jefferson Turrets are real production tools — substantial, rigid, accurate. They must not be confused with the small make-shift gadgets now on the market.



Pat. Pending
4-Tool Tool-Post Turret



The Jefferson Bull-Dog Precision Milling Machine. Obtainable Power or Hand Feed.



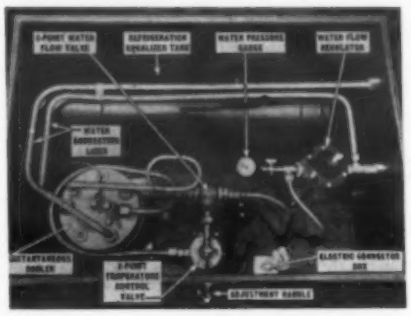
5-Tool Tail-Stock Turret
Pat. Pending

● ALSO—Milling Machine Dividing Heads, Vises, Belt Sanders, Swing Frame Grinders, Gyratory Foundry Riddles.

JEFFERSON MACHINE TOOL CO.
669-679 W 4th STREET DEPT. J CINCINNATI, OHIO

▲ Mention Item NED-2463 when writing ▲

REFRIGERATING UNIT



Designed to maintain even solution temperature in development of X-ray film photographs, model 555-PD refrigerating unit circulates large quantities of controlled temperature water at recommended 65 degrees Fahr. around processing solution containers in development tank. At same time large volume of clean controlled temperature water for washing film or plates is always available because all used water is drained off and not recirculated.

Waste water contacts fresh water inlet coil, pre-cooling it and permitting use of much smaller refrigeration equipment on high capacity installations. Simple adjusting handle on outside of cabinet makes it possible to lower temperature to 45 degrees Fahr. for quick cooling in event fresh chemicals are dissolved in high temperature water or system has been shut down for considerable period. Made by **Temprite Products Corp.**, 51 Piquette Ave., Detroit, Mich.

▲ Mention Item NED-2464 when writing ▲

PETROLEUM PUMPS

Designed primarily for aviation refueling systems, these turbine type pumps will also handle gasoline and fuel oil from tankers; pump quenching oil and other liquids, and provide similar service in other industries. Advantages claimed for design include elimination of priming difficulties, low installation cost, minimum floor space requirements and freedom from lubrication troubles.

Capacities of these units range up to 1000 gallons per minute against head pressures normally encountered in gasoline fueling systems. Higher capacity is available at slightly reduced pressures in case of increased demand. Pumps are self-venting and cannot become vapor locked.

Totally enclosed, explosion proof vertical motors are used where highly volatile liquids are to be handled. Right angle drive can be furnished where it is desirable to use horizontal motor. Combination drives are also available to provide emergency operation in case of power failure. No suction piping is necessary. All pump bearings are of Micarta, impregnated in graphite. Made by **The Deming Co.**, Salem, O.

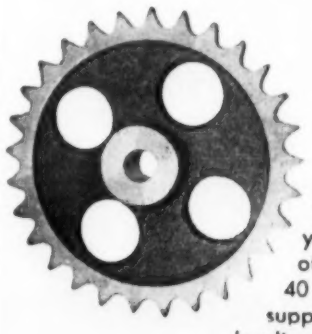
▲ Mention Item NED-2465 when writing ▲

DO YOU KNOW?

Large scale blueprints, so widely used in war industries and government offices, may be assembled through use of casein-bound adhesive which furnishes glue bond capable of withstanding various baths to which jointed blueprint paper is subjected while traveling through printing and developing machines. Designated as P-40 Lauxein, this glue is made by I. F. Laucks, Inc., Dept. 1, 911 Western, Seattle, Wash.

▲ Mention Item NED-2466 when writing ▲

"SPROCKETS BY CULLMAN"



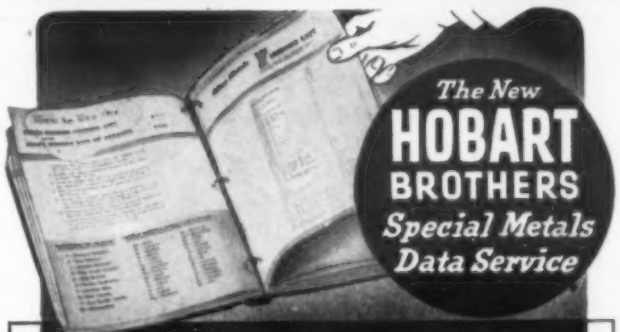
That is an indication of the finest and most accurate construction.

When you specify "Sprockets by Cullman," you have the assurance of quality, backed by over 40 years of experience in supplying sprockets to leading manufacturers.

OVER 50,000 SPROCKETS IN STOCK

CULLMAN WHEEL CO.
1333 Altgeld St., Chicago

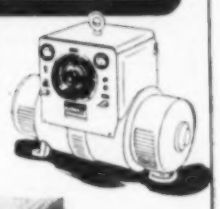
▲ Mention Item NED-2467 when writing ▲



A Supplement Service on Metal Subjects that vitally concerns Your Production

Hobart has designed this new service for everyone interested in welded products . . . to answer the new problems arising daily, to put valuable information in ready-reference form. Subjects are covered separately and sent to you ready to put into a loose-leaf binder. A very successful feature of this service is the "Alloy Metals Finding List." It lets you pick substitute alloys at a glance, for they're all keyed by characteristics. Ask to be put on mailing list.

FREE! *Ask for Yours*



HOBART BROS. CO., Box ND-53 TROY, OHIO

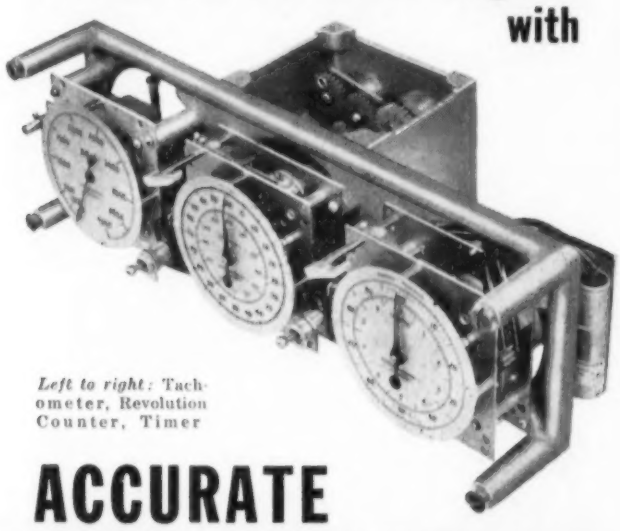
HOBART *Simplified* ARC WELDERS
with the original REMOTE CONTROL

Newest, Most Up-to-date MANUAL and Text Book yet published on . . . ARC WELDING
Covers every procedure. Diagrams show you how.
$2.00 Postpaid On 5 Days Free Inspection

HOBART . . . "One of the World's Largest Builders of Arc Welders"

▲ Mention Item NED-2468 when writing ▲

Determine FUEL CONSUMPTION— OIL CIRCULATION— DEVELOPED HORSEPOWER of Aircraft and Other Engines with



Left to right: Tachometer, Revolution Counter, Timer

ACCURATE SPEED MEASUREMENT

The Standard Electric *Improved* Chronotachometer—Type CR—has such salient features as: *Automatic Reversing*—directional rotation of flexible shaft may be completely disregarded. *Rigid Cast Frame*—readily mounted integral with your present panel and assuring freedom from distortion and from strain on members. Furnished also in portable case or flush mounting case. *Shaft Coupling Conveniently Located*—flexible shaft coupling will be located, to your order, at the rear, at either side, or at top or bottom of the gear housing.

We also manufacture Precision Stop Clocks; design and build Distribution and Test Panels to specifications. Write for address of nearest branch office. Address Dept. NED-6.

THE STANDARD ELECTRIC TIME CO.
"Split-Second Measurement by Standard"
SPRINGFIELD, MASSACHUSETTS

▲ Mention Item NED-2469 when writing ▲

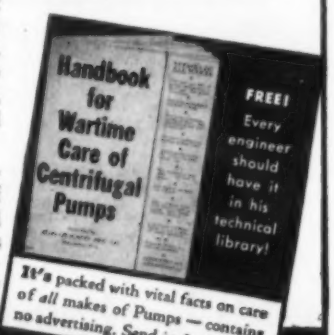
GREATEST BOOK EVER WRITTEN ON PUMPS!

FREE! New centrifugal pump maintenance guide is answer on how to make your pumps *last* in wartime!

Here's the greatest help you can get on wartime care of pumps—*great* because it's *new!* Not normal 1800 hours, *but the 8700 hours most pumps are working now* — that's what these vital considerations are based on:

How pump construction affects pump maintenance . . . Tips on easy ways to find leaks . . . Common mistakes in packing stuffing boxes . . . How tight is "too tight" for a gland . . . Quick diagnosis of pump ills (symptoms, causes, proven cures) . . . and many others.

These facts in the "Handbook for Wartime Care of Centrifugal Pumps" will help you make your pumps *last longer.* Write today for your copy *free of charge!*



It's packed with vital facts on care of all makes of Pumps — contains no advertising. Send in for it *today!*

ALLIS-CHALMERS
MILWAUKEE·WISCONSIN

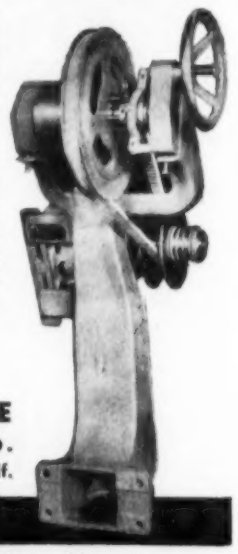
▲ Mention Item NED-2471 when writing ▲

BIG DIAMETERS or small Production goes UP with a Given!

You increase *both* the usefulness and production of older slow-speed machine tools when you convert to the Given Vari-Speed Drive.

Instantly variable r.p.m. from fastest to slowest—plus a 30% boost in available top speed—enable your operators to efficiently handle *any* work diameters and use modern high-speed cutting tools. Production from the older machines is often *doubled.* Other machines are relieved for extra work. Simple handwheel control saves time by eliminating need for stopping to change belts or shift gears.

Put your older machine tools in the front line of production now. The Given is available in 1 to 10 h.p. sizes. Free booklet and blueprints give details and show easy mounting methods for *any* machine tool. Write —*today*—for literature and prompt recommendations.



Given VARI-SPEED DRIVE
GIVEN MACHINERY CO.
Box 235, Vernon Station, Los Angeles, Calif.

▲ Mention Item NED-2472 when writing ▲

HERE'S HELP!
IN TRAINING CRANE OPERATORS

TELLS HOW and SHOWS HOW to operate efficiently

The first Crane MANUAL ever published

Your copy is free! A simply written, easily understood 48-page manual. 70 illustrations—two colors—pocket size for the convenience of every crane operator.

Applies to direct current overhead cranes—all makes. Useful in training new operators—including women—also beneficial for the more seasoned operator. Send for your copy today. Ask for Booklet 920—"How to Operate a Crane."

THE ELECTRIC CONTROLLER & MFG. CO.
Cleveland Ohio

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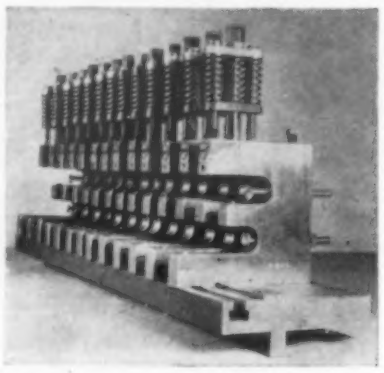
HOLE PUNCHING UNITS

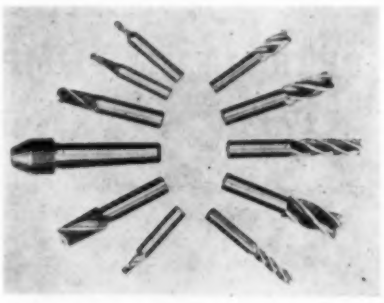


Punching of a series of holes in extruded shapes may be accomplished simultaneously on standard press brakes through use of Wales Type E hole punching units. Center projection carrying die member extends into all shapes of extruded work and provides clearance for legs in lower gap. Work slides easily and quickly into level position on top of die where it is pierced by punch.

Each punching unit is made up of punch, die, holder, stripping spring and guide. Punch and die are held permanently aligned. Other than fastening into position on rail of press brake, no adjustments are necessary. Made by **The Strippit Corp.**, North Tonawanda, N. Y.

▲ Mention Item NED-2474 when writing ▲

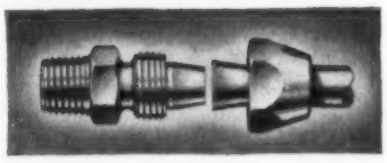
END MILLS



Available in eleven styles, each for a specific purpose, Kurl Kut end mills are made of high speed tool steel and are individually heat treated. Styles include single-end, long single-end, two-flute, long two-flute single-end, ball, extra long ball and Browne & Sharpe taper shank end mills; fluted chucking and rose chucking reamers; collets and end mill holders. Made by **Fray Tool & Reamer Co.**, 517 W. Windsor Rd., Glendale, Calif.

▲ Mention Item NED-2475 when writing ▲

TUBING CONNECTOR



Of a design which permits manufacture from all kinds of metal, Superseal tubing connector is adaptable for use with practically all types of tubing. Use of 10 degree tapered cone gives ample seating area for tubing flare, assures leakproof joint under vibration and pressure, and even steel tubing is easily flared to this angle. Inside diameter of tubing is maintained and assemblies can be disconnected or reconnected repeatedly without injury to fitting or tubing.

These units are made at present of steel in sizes up to and including ½-inch outside diameter and of malleable iron with ⅝-inch outside diameter and larger sizes. They are adaptable for use on oil, gas, air, chemical and other lines. Protective Parkerizing wax finish is used on all fittings. Made by **The Grinnell Co.**, Superseal Div., 251 Exchange St., Providence, R. I.

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PAPER PROTECTS

WRAP WAR PARTS WITH CENTRAL'S PROTECTIVE PAPERS

Deterioration of war parts from corrosion, moisture and vapor obstructs Victory—Central has a complete line of protective papers for large parts and small.

Let Central solve your wrapping and packing problems—and don't forget Central's laboratory designed industrial papers.

BUY U. S. WAR BONDS

CUSTOM BUILT AND CENTRALINE SPECIALTY PAPERS

CENTRAL PAPER COMPANY INCORPORATED

MICHIGAN UNITED WATERPROOF DIVISION
MUSKEGON, MICHIGAN

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MEAD
BURRING MACHINE
INDUSTRY'S JACK-OF-ALL-TRADES

Also Works On Inside Cut-Out Openings!

Serving a swiftly-growing number of America's important Defense Contractors. For that troublesome grinding or finishing job, try The Burring Machine. If it doesn't help you, it won't cost you a cent! There is not one industrial plant in America where this machine—somewhere along the line—cannot be helpful. Tool-room, template department, production line, or elsewhere—it will find its place. Try it at our expense. Immediate delivery in most instances.

TYPICAL BURRING MACHINE JOBS
De-burring stampings and other small parts. Removing "flash" from forgings and die-castings. Grinding cutters and tools. Cleaning up irregular edges. Smoothing and polishing metals of all kinds.

MEAD SPECIALTIES CO.
15 S. MARKET ST. Dept. 53-N CHICAGO

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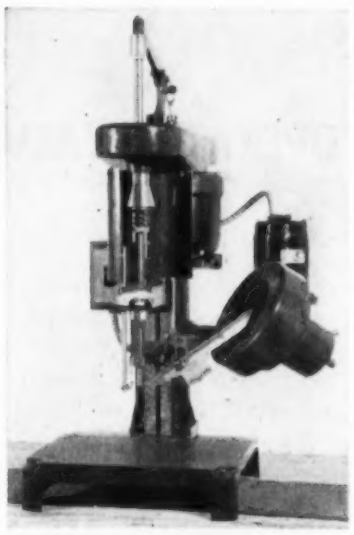
THE ANSWER TO THE PROBLEM OF DRIVING SMALL SCREWS



DRIVES SCREWS FROM NO. 2 x ⅛ TO NO. 6 x ¾

A REAL PRODUCTION MACHINE

WILL NOT MAR SCREW HEADS OR STRIP HEADS

Send Samples for Production Estimates

DETROIT POWER SCREWDRIVER CO.
2819 W. Fort St. Detroit, Mich.

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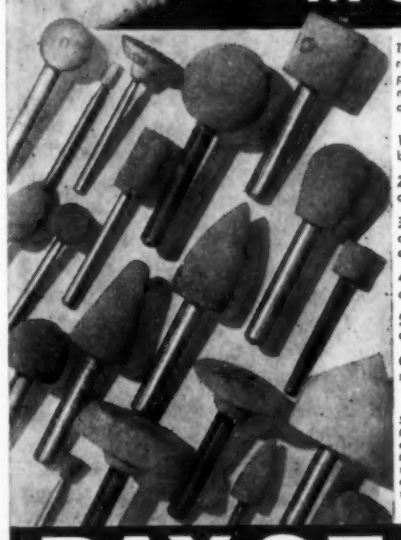
A little touch MEANS SO MUCH!



There are several honest-to-goodness reasons why BAY STATE wheels and points are preferred for those innumerable, fussy jobs on moulds and dies.

1. They are pressed into uniform blanks, assuring grade hardness.
2. They are formed absolutely true on BAY STATE precision lathes.
3. They are ready for immediate cutting action — in a myriad of shapes and sizes.
4. They can be used completely down to the spindle.
5. They will not come off the spindles.
6. They are free from "hard and soft" spots.

Send for illustrated catalog and bulletin containing standard stock and mandrel specifications.

WHEELS of PROGRESS

BAY STATE
ABRASIVE PRODUCTS CO., WESTBORO, MASS. U.S.A.

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VARIABLE SPEED CONTROL

Variable speed control of V-belt driven equipment up to a maximum 3 to 1 ratio is provided by this single lever controlled unit. Mechanically simple in design and sturdily constructed to withstand hardest service, models 1A and 2A Toledo variable speed controls have numerous unique features . . . including: plain, smooth pulley, eliminating noise and vibration; stepless speed variation up to full 3 to 1 ratio; minimum pulley diameters are increased to transmit greater H.P. over entire range; new pulley design providing cylindrical bottom for V-belts which fixes minimum pitch diameters, preventing damage to belts and giving increased torque; single arm support, for easy belt application; large shaft, oilite bearings and lubricant reservoir; sector plate serving as dial indicator and additional locking medium; unusually attractive prices.

Wheel assemblies can also be purchased without mountings for application on machines . . . providing built-in speed control.

If you have a variable speed control problem, either on plant equipment or on machinery you build for sale, investigate the Toledo variable speed control . . . you'll be interested in its efficiency and low price. **The Toledo Timer Co.,** 2224 Albion St., Toledo, O. —Advt.

▲ Mention Item NED-2481 when writing ▲

The Senacon AIR-VISE opens and closes in *automatic synchronization with the main machine tool cycle.* It provides for smooth, fast machining and mass production of workpieces in drilling, reaming, tapping, milling, sawing, filing, etc., and eliminates the waste operator motion required with ordinary hand vises!

Simple drag link connection from Air Motor to a moving part of the machine tool synchronizes vise opening and closing. Motor valve operating lever operates *from any angle in any plane.* Dual-exhaust air streams provide for blowing dirt and chips from the work area, ejecting workpiece, operating feed hoppers, etc.

SPECIFICATIONS: Two False Jaws—⅝" x 1½" x 4"; maximum Jaw opening—2¼"; total Thrust—500 lbs. at 100 lbs. air pressure.

Write for SENACON Bulletin 101 which tells how this and other SENACON Controlled Air-Power Devices are speeding production . . . cutting costs . . . increasing shop efficiency.

SMITH-JOHNSON
CORPORATION
BENDIX BLDG., LOS ANGELES, CALIFORNIA

SPEED PRODUCTION WITH CONTROLLED AIR-POWER

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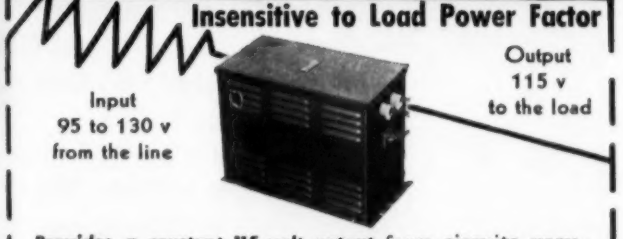
NEW G-E VOLTAGE STABILIZER

Insensitive to Load Power Factor



Provides a constant 115-volt output from circuits varying from 95 to 130 volts, assuring better performance and greater reliability of a wide variety of electric equipment. Applicable to photo-cell work, laboratory devices, radio apparatus, X-ray equipment—wherever fine voltage regulation is a requisite to good operation.

Not affected by variations in load from no load to full load, or changes in power factor from unity to 0.8 lagging.

Completely automatic: No moving parts, no adjustments, no maintenance.

Wide range of ratings: From 50 to 5000 va. "Specials" on request.

CLIP THIS AD and mail to Section A403-40, General Electric, Schenectady, N. Y., for the complete story. Ask for GEA-3634.

GENERAL ELECTRIC

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STEEL SWIVEL CASTER

Designed for use on portable equipment and small material handling units, these heavy duty all steel swivel casters are made with 5¾, 6 and 8-inch wheel diameters, respective treads being 2½, 1¾ and 2 inches. They may also be equipped with rubber tires as optional equipment.

Drop forged base plate has integral king pin. Timken Thrust bearing rotates around king pin and caster swivels on ⅜-inch chrome steel ball bearings which ride in removable steel races. Standard design includes Hyatt roller wheel bearings. Oilite or other special wheel bearings can be furnished. Made by **Rose Manufacturing Co.,** 12400 Strathmoor, Detroit, Mich.

▲ Mention Item NED-2484 when writing ▲

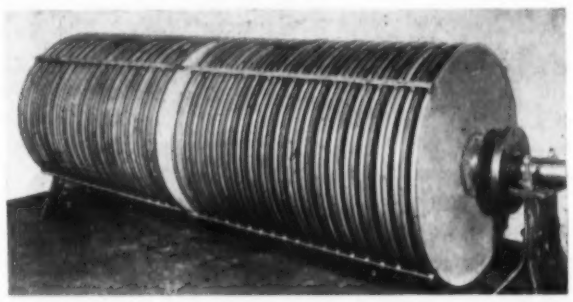
ANODIZING SALTS

The use of vital salts of Electrodizing process in sulfuric acid anodizers is offered by this company for facilitating sulphuric acid anodizing of aluminum. Addition of these salts to regular sulphuric baths is claimed to result in speed up to 24 amperes per square foot, which is twice that of usual anodizing methods. Operating temperatures up to 100 degrees Fahr. may be used without artificial refrigeration. Aluminum sulfate content is removed for increased electrolyte life. Because of higher voltage and current densities, lower acid content and action of addition salts, better quality of oxide coats are claimed to result. Use of these salts requires no license fees. Complete Electrodizing process is under license to plants doing war work. Developed by **Colonial Alloys Co.,** 2154 E. Somerset St., Philadelphia, Pa.

▲ Mention Item NED-2485 when writing ▲

CLARIFICATION FILTER

Uniform tautness of screen is produced by sturdy leaf design incorporated in rotary leaf clarification filter. This leaf prolongs screen life and eliminates customary clamping



ring bolts. Element illustrated contains forty 44½-inch diameter leaves and will be used for clarification of 50 per cent cooled electrolytic caustic solution to give polished filtrate. Made by **Swenson Evaporator Co.,** 15602 S. Lathrop Ave., Harvey, Ill.

▲ Mention Item NED-2486 when writing ▲

POWERS TEMPERATURE and HUMIDITY CONTROL

When you want accurate and dependable automatic temperature or humidity control for Industrial Processes or Air Conditioning Systems call in a Powers engineer. With a very complete line of self-operating and compressed air operated controls we are well equipped to fill your requirements.

Write for Circular 2520

THE POWERS REGULATOR CO.
2777 Greenview Avenue, CHICAGO

Offices in 47 Cities—See your phone directory

50 Years of Temperature and Humidity Control

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NO OIL NO WAX

At last . . . a permanent tracing paper . . .

ALBANENE* is made of 100% long fiber pure white rags—treated with *Albanite*—a new synthetic solid, physically and chemically inert. ALBANENE will not oxidize, become brittle or lose transparency with age. ALBANENE has a fine hard "tooth" that takes ink or pencil beautifully, makes tracing simple and produces strong sharp blueprints. Ask your K & E dealer, or write us for brochure and generous working sample.
*Trade Mark

EST. 1867
KEUFFEL & ESSER CO.
NEW YORK—HOBOKEN, N. J.
CHICAGO · ST. LOUIS · DETROIT · SAN FRANCISCO · MONTREAL · LOS ANGELES

K&E Albanene
THE STABILIZED TRACING PAPER

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SEE YOUR DEALER OR WRITE DIRECT

V & E MANUFACTURING CO.
PASADENA • CALIFORNIA

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A SERVICE EXTENDED TO READERS of this PUBLICATION

Our advertisements in other publications are printed on "inserts", a method which we cannot use in this publication. These inserts contain useful information on the properties, uses, manufacture, and methods of machining Synthane Bakelite-laminated. If you would like to have any or all of the sheets in this informative series you are cordially invited to request them on the coupon below.

SYNTHANE
Bakelite—Laminated
TECHNICAL PLASTICS
SHEETS • RODS
TUBES • FABRICATED
PARTS • SILENT
STABILIZED GEAR
MATERIAL

SYNTHANE CORPORATION,
Northeast River Road, Oaks, Penna.
Kindly send me:
( )"How Synthane Sheets, Rods and Tubes are Made"
( )"General Characteristics of Synthane Grades"
( )"Practical Methods of Machining Synthane"
( )"Standards of Quality for Synthane Sheets"
( )"Corrosion Resisting Synthane"
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Now! THEY'RE MADE OF WOOD

INCREASED PRODUCTION —PROMPT DELIVERY

● Kewaunee Automatic Adjustable Stools and Chairs, formerly made of metal, are now being produced in ALL WOOD. Redesigned to retain substantially the same adjusting principle. Sturdily built of selected hard wood to embody unusual strength and endurance. They're "ton-tested."

Kewaunee

AUTOMATIC ADJUSTABLE CHAIRS and STOOLS

A new standard of efficiency in industrial seating. Any man or woman, tall or short, light or heavy, can *instantly* adjust a Kewaunee AA Chair or Stool to exactly the height desired. Just lift the seat—that's all. Right posture, correct height of seat from floor, insure greater comfort and efficiency, better work, increased production, fewer rejects.

Write for circular and full details.

Three standard height ranges —18" to 22", 22" to 28", and 28" to 36". Other heights obtainable. Shaped plywood seat, adjustable back-rest and foot-rest.

KEWAUNEE MFG. CO., ADRIAN, MICH.

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but we used Hodgman Saran and delivered on time!

When the history of this period is written, this is what many firms will be able to say. HODGMAN SARAN is more than a substitute — it is a permanent replacement for strategic materials such as copper, brass, steel, aluminum, rubber, etc., and deserves a thorough investigation by your engineering department . . . Write today for technical data sheet and free sample.

*SARAN PLASTIC PIPE, TUBING, FITTINGS

are chemically resistant and non-corrosive — withstand a wide range of temperatures — are easily installed with ordinary simple tools.

*Pat. No. 2160931

HODGMAN RUBBER CO.
FRAMINGHAM, MASS.

NEW YORK . . . 261 Fifth Avenue
CHICAGO . . . 412 South Wells St.
SAN FRANCISCO . . . 121 Second St.

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Get Longer Life From Your PERISHABLE TOOLS

HILCO UNIVERSAL TOOL and CUTTER-GRINDER

Perishable tools — so difficult to obtain today — last longer, cut better and quicker if kept always sharp. The HILCO Universal Tool & Cutter-Grinder costs only $495.00 F.O.B. Chicago, complete with Universal Index Dividing Head, step collars, ¼ hp. 110 volt universal motor, index fingers, grinding wheels, etc. Quick delivery.

Write for circular and full specifications.

BERCO MANUFACTURING CO. 435 W. Superior St. Chicago, Ill.

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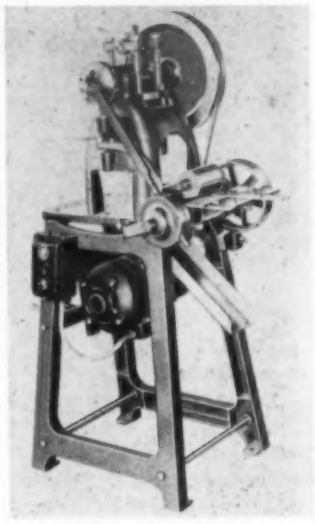
STAMPING PRESS



Of improved design, this high speed automatic stamping press has variable speed control which permits operation at from 180 to 550 strokes per minute. This machine will accommodate die sets measuring up to 6¼ by 8 inches. Maximum die space of standard unit is 4⅛ inches closed but this may be increased to 5¼ through use of additional spacers. Integral roll feed is provided for strip stock up to 4½ inches wide. Slow speed, ¾-horsepower, three-phase motor mounted under press bed, drives machine through V-belt.

Head design includes cylindrical ram of 4-inch diameter and inserted pitman screw. Stock feed is driven by adjustable crankwheel on end of crankshaft. This wheel operates reciprocating rack and one-way mechanism connected to 3-inch rolls. Rating of press is approximately 5 tons. Made by Di Machine Corp., 3654 Lincoln Ave., Chicago, Ill.

▲ Mention Item NED-2494 when writing ▲

SAFETY EYESHIELD

Designed to deflect hazardous flying particles, this M.S.A. Skullgard eyeshield combines effective eye protection with proved head safety. This transparent plastic shield is so hinged under safety helmet's brim that it is positioned before eyes in proper facial curvature by a downward flip, and when not in use lies flat against brim. In either position eyeshield remains firm. These eyeshields may be ordered with all types of M.S.A. Skullgards and Comfo caps, or may be ordered separately for attachment to those hats and caps already in service. Made by Mine Safety Appliances Co., 220 N. Braddock Ave., Pittsburgh, Pa.

▲ Mention Item NED-2495 when writing ▲

DO YOU KNOW?

Quickly indicating presence of moisture in shipping containers carrying war parts and machines, this humidity indicator consists of blue hygroscopic crystals placed between starched cotton mesh and crystal clear Lumarith window, which is framed in heavy cardboard on which is printed four bars of color. When moisture is present, crystals change color from deep blue to lavender and finally to deep pink indicating necessity for adding dehydrating material. Crystals made by Davidson Chemical Corp., Baltimore, Md.

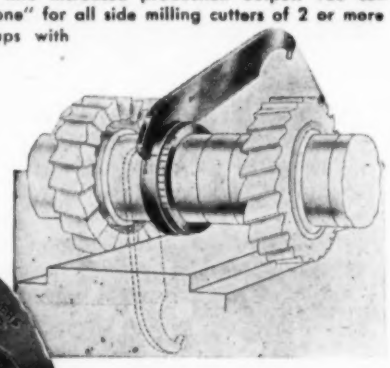
▲ Mention Item NED-2496 when writing ▲

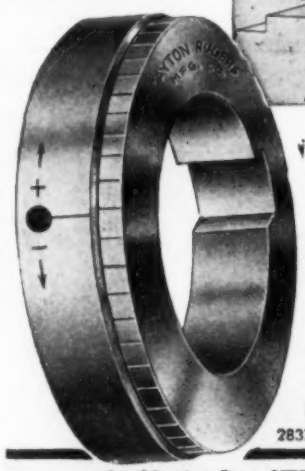
SAVE TIME ON YOUR GANG MILLING SET-UPS

Set-up time saved goes into increased production output. You can cut set-up time "to the bone" for all side milling cutters of 2 or more and gang milling set-ups with

Dayton Rogers ADJUSTABLE SPACING COLLARS

Just loosen cutter arbor nut, and with handy wrench make your adjustments by .001½", total adjustment of ⅛".





"DAYTON ROGERS" ADJUSTABLE SPACING COLLARS are graduated in thousands, with plus or minus markings as shown. It takes but a moment for a positive, precision adjustment. Made in 11 standard sizes for cutter arbors from ⅜" to 3". If you once try them, you'll never again waste time and hold down output with old-time methods. Write for bulletin, giving name of dealer or supply house.

DAYTON ROGERS MFG. CO.
2837 12th Ave. So. Minneapolis, Minn.

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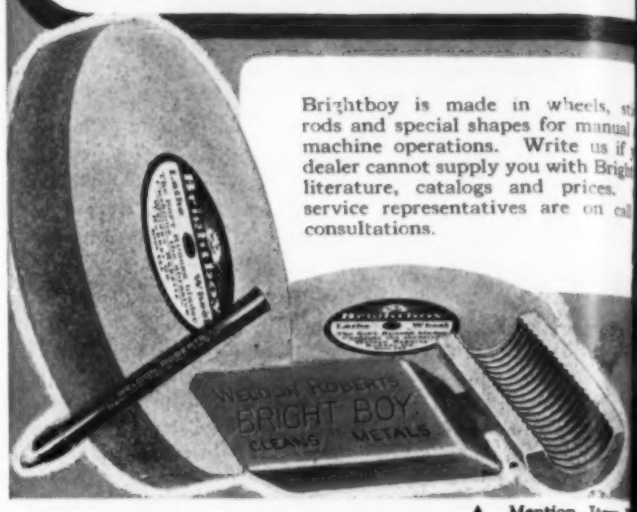
WELDON ROBERTS

Bright

Find Out About Big Brightb
DE-BURRING • CLEANING



Brightboy is made in wheels, st rods and special shapes for manual machine operations. Write us if dealer cannot supply you with Bright literature, catalogs and prices. service representatives are on call consultations.

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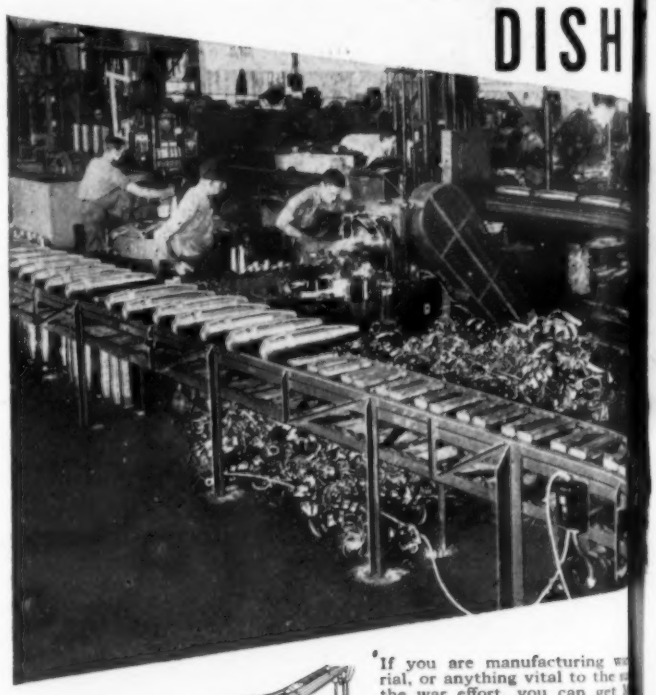
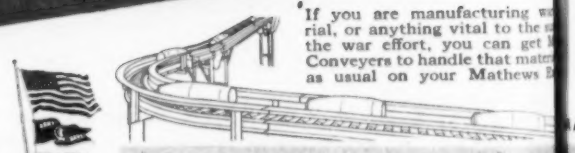
DISH O



*If you are manufacturing wa rial, or anything vital to the w the war effort, you can get M Conveyers to handle that mater as usual on your Mathews B



MATHEWS CONVE

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"Safe-Hed" STEEL STAMPS

IMMEDIATE SHIPMENT FROM STOCK
ALLOY TOOL STEEL
ALL SIZES
MADE FOR 90% OF MARKING NEEDS

Write for Cat. 146-A!

JAS. H. MATTHEWS & CO.

3943 Forbes Street Pittsburgh, Pa.
Branch Plants
New York, Boston, Chicago, Philadelphia, Newark, Syracuse
District Sales Offices
Cleveland Detroit Hartford Birmingham

▲ Mention Item NED-2500 when writing ▲

WELDON ROBERTS
Brightboy

Time and Work Savings in FINISHING • POLISHING

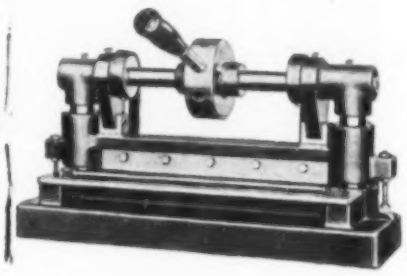
Brightboy's service representatives and Brightboy's "Methods and Applications" data have shown hundreds of war industries how de-burring, cleaning, polishing, finishing operations can be reduced. The abrasive is *rubber cushioned*, bridging the gap between a grind and a buff and giving a precision finish which frequently serves as a final polish. There's nothing like Brightboy for finishing alclad, dural, "stainless", aluminum and other metals.

BRIGHTBOY INDUSTRIAL DIVISION
WELDON ROBERTS RUBBER CO., Newark, N. J., U. S. A.

▲ Mention Item NED-2502 when writing ▲

DUPLICATING SHEAR

Capable of shearing, squaring, slitting, stripping or notching all materials within its capacity range by simple adjustment of shearing controls, Di-Acro shear No. 3 has accuracy within tolerance of 0.001 inch in all duplicated work. Pliable and ductile materials and metals, including spring tempered materials, fabrics, plastics, leathers, rubber and lightest of tissues can be formed and duplicated.



Machine has maximum shearing width of 12 inches, and maximum shearing capacity, full width, of 22-gauge steel plate. Blades are reversible, increasing blade life and providing double service without re-sharpening. All main bearings are adjustable or replaceable for wear and alignment. Made by **O'Neil-Irwin Mfg. Co.**, 320 Eighth Ave. S., Minneapolis, Minn.

▲ Mention Item NED-2502 when writing ▲

INSPECTION MAGNIFIERS

Facilitating operations on all small parts and work in inaccessible places, this line of Acrolite special work illuminators, magnifying and inspection units includes several styles. Work illuminators comprise many different types of specialized electric lamps.

Line of inspection units contain illuminating magnifier which provides both light and magnification for exact assembly and inspection of small parts. Both of operator's hands are free for handling parts. Internal illuminators provide required lighting to inside surfaces of deep cavities, castings, bomb cases, rifle barrels and similar dark, inaccessible places. Made by **Acro Tool & Die Works.**, Dept. Q, 5324 N. Kedzie St., Chicago, Ill.

▲ Mention Item NED-2503 when writing ▲

LOW-TIN SOLDER FLUX

Developed especially for soldering operations using low-tin solders, No. 6 soldering fluid is claimed to break down lead-rich solders into absolute fluid that will flow into inaccessible places. High capillary action causes solder to flow evenly and is said to result in stronger, better soldered joints than were obtainable with 50-50 solders.

Material does not crawl or creep. It produces no irritating fumes. Being concentrated, flux can be diluted for materials that are easy to solder. Free sample may be obtained by writing direct to manufacturer. Made by **Lloyd S. Johnson Co.**, 2243 Indiana Ave., Chicago, Ill.

▲ Mention Item NED-2503-A when writing ▲

NIAGARA
AERO HEAT EXCHANGER
Increases production with better cooling
Saves space and equipment
Cuts cost of water cooling

● A WATER SAVER, using the evaporative cooling principle to maintain ideal temperatures and hold them uniform by constant control. Successfully used in

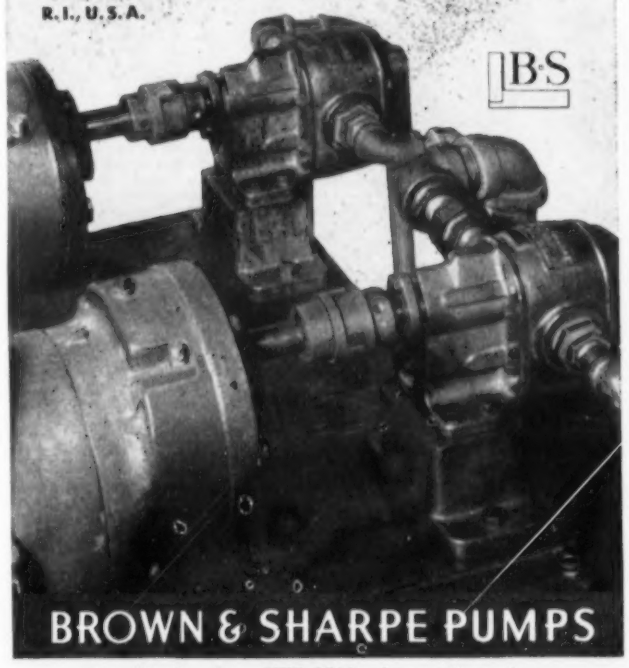
. . . *all water-jacketed equipment or engines*
. . . *quenching water, oils or compounds*
. . . *lubricants and coolants in machining*
. . . *air or gas compressors, jackets, inter and after cooler*
. . . *cooling electronic sets, welders, vacuum tubes, transformers, electric induction heaters*

Saves piping, pumping and maintenance cost of large water systems; costs less to install; saves 95% of cooling water. Provides closed system free from contamination. Provides heating when needed. For Bulletin, address Department ED-53.

NIAGARA BLOWER COMPANY
6 E. 45th Street, New York City
District Engineers in Principal Cities

▲ Mention Item NED-2505 when writing ▲

BROWN & SHARPE PUMP-SETS
For Transfer — Lubrication — Coolant Supply
Pump Sets with motors, pumps and bed plates, direct or gear reduction drives, are advantageous for many industrial applications. Here two Sets are transferring oil from hardening room to cooling tank. Catalog listing Rotary Geared, Vane and Centrifugal Pumps forwarded upon request. Brown & Sharpe Mfg. Co., Providence, R.I., U.S.A.



▲ Mention Item NED-2506 when writing ▲

OUT

Faster!

THAT'S THE WAY TO WIN this war . . . and that's the way to speed the production of vital war material.

Keeping materials, parts and supplies moving to waiting machines and eager hands with a Mathews Time-Controlled Conveyer System is a sure-fire means of making production schedules "click."

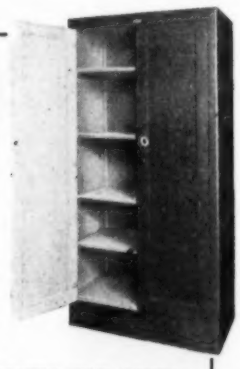
Mathews Engineers are helping American War Industries dish it out faster; perhaps they can also help you.

MATHEWS CONVEYERS FOR MECHANIZED PRODUCTION

MATHEWS CONVEYOR COMPANY ELLWOOD CITY PENNSYLVANIA

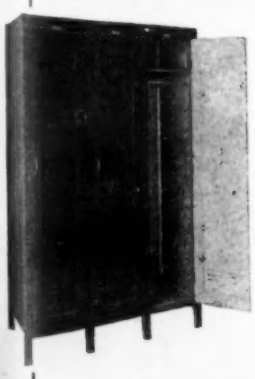
▲ Mention Item NED-2500 when writing ▲

NYWOOD
CABINETS, LOCKERS, TOOL STANDS, ETC.



Sturdy plywood construction completely immersed in a special solution to make them termite-proof and rot-proof, also protect them against salt water, weather and odors, and make them fire resistant.

● **SUCCESSFUL SUBSTITUTES FOR STEEL**



Handsome Office Green exterior finish of tough lacquer. Interiors, tops and bottoms finished in neutral tone resulting from immersion in the special processing solution. All models in standard sizes and sectionizing. Easily assembled. Most moderately priced.

Send for literature

NYCE METAL PRODUCTS COMPANY
4308 NORTH BROAD STREET, PHILADELPHIA, PA.
Phone MIChigan 6463

▲ Mention Item NED-2501 when writing ▲

How to make WARTIME PATCHING EFFECTIVE.... LASTING..

WITH SMOOTH-ON

Buy Smooth-On in 7-oz., 1-lb. or larger containers from your dealer, or if necessary from us.

For 48 years, plant maintenance men and mechanics have found that SMOOTH-ON makes results SURE when they use it to seal cracks in machinery castings, to stop leaks in apparatus and on pipe lines, and to tighten loose fixtures of machinery and structures.

Today, more than ever before, SMOOTH-ON is a plant necessity . . . to prevent production delays when replacements are difficult or impossible.

SMOOTH-ON MFG. CO.
Dept. 10, 570 Communipaw Ave.
JERSEY CITY, N. J.

48-PAGE HANDBOOK FREE

This concise, practical repair manual describes dozens of ingenious repairs that cannot be found in any other publication. A war-time essential in every plant. Write for your free copy.

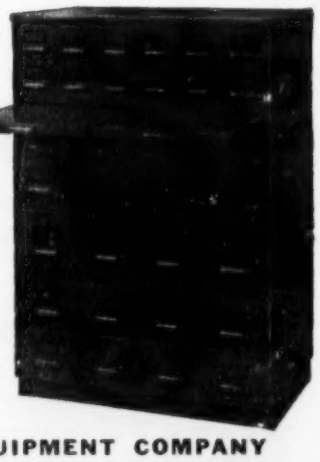
Do it with **SMOOTH-ON**

▲ Mention Item NED-2504 when writing ▲

File Cards Better!

USE PERMA-BILT FILING EQUIPMENT

Record cards have never played a more important part in industry than they do today. They are vital to plant production, cost analysis, inventory control, pay-roll, etc., etc. In many plants production is increased because record cards are PROPERLY filed for QUICK reference. PERMA-BILT Filing Equipment was especially designed by Filing Equipment Engineers to meet our present-day needs. They are made of selected hardwood and in sizes for tabulating cards, finger-print cards, time cards and standard size record cards. The cabinets are all made in one standard size, and all drawer sizes can be combined in one unit as illustrated. If your dealer cannot supply you, write us. Record cards are important and should be PROPERLY filed for QUICK reference.



Ask your dealer, or write us.

PERMA-BILT EQUIPMENT COMPANY
HANNA BLDG. • CLEVELAND, OHIO

USE PERMA-BILT FILING EQUIPMENT

▲ Mention Item NED-2507 when writing ▲

All Wisconsin Air-Cooled Engines are equipped with an exceptionally rugged, oversize crankshaft (as compared with other engines of comparable size)...drop-forged for maximum molecular compactness and ability to withstand the terrific pounding to which this vital unit is subjected in heavy-duty service.

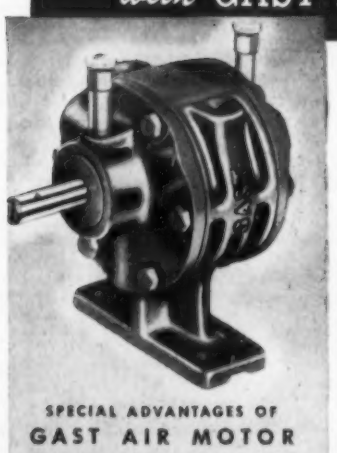
Because the burden of heavy-duty engine operation falls on the crankshaft, we feel that no crankshaft can be made "too good". We build them as good as we know how.

MOST POWER Per POUND

WISCONSIN MOTOR Corporation
MILWAUKEE, WISCONSIN, U. S. A.
World's Largest Builders of Heavy-Duty Air-Cooled Engines

▲ Mention Item NED-2508 when writing ▲

Solve EXPLOSION-PROOF problems with GAST AIR MOTORS



★ COST MUCH LESS
Than explosion-proof electric motors

★ VARIABLE SPEED
over a wide range Up to 3,000 R.P.M.

★ PROMPT DELIVERY

On explosion-proof applications where compressed air is available, the Gast Air Motor provides power at much lower first cost and practically no service cost (based on 7 year record).

The Gast Air Motor is particularly applicable to war-production jobs such as driving mixing equipment in munitions plants, process industries, etc. It delivers from 1/20 to 1 H.P.

Because it employs the same Rotary principle as the famous Gast Air Pumps, the Gast Air Motor offers the same economy and long life advantages.

SPECIAL ADVANTAGES OF GAST AIR MOTOR

- No reciprocating parts or springs.
- Automatic take-up for wear.
- Low maintenance—cannot be burned out.
- Positive starting in any position.
- Exceptional compactness for power developed.

Write for FREE Catalog on GAST AIR MOTORS — PUMPS — COMPRESSORS

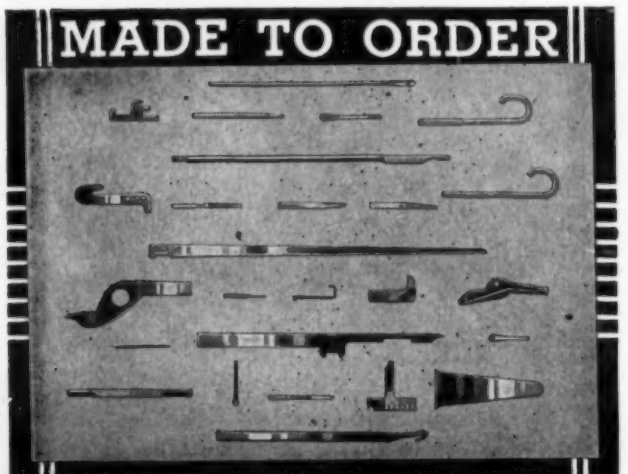
Contains full descriptions, engineering data, and many application photographs on the complete Gast line which includes 12 sizes, Gast Rotary Air Pumps, ½ to 23 C.F.M. Pressures up to 30 lbs.

GAST MFG. CORP.
115 Hinkley Street
Benton Harbor, Michigan

GAST ROTARY AIR MOTORS & PUMPS

▲ Mention Item NED-2509 when writing ▲

MADE TO ORDER



For special flat metal or odd shaped parts as shown, we maintain a special department where such parts are built to your specifications.

Pressed and sheared to exact dimensions, with smooth edges. Odd shaped parts reproduced faithfully from sample or sketch.

Special equipment and 72 years of experience assure satisfaction.

The Torrington Company
SPECIALTY DEP'T.
Torrington, Conn., U.S.A.

▲ Mention Item NED-2510 when writing ▲

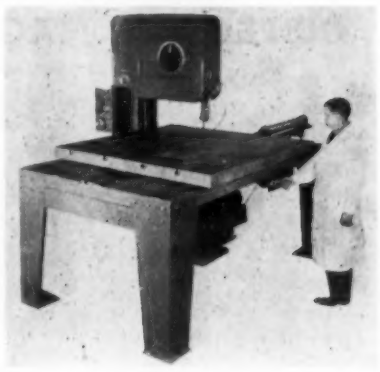
COOLANT PUMP

Available for immediate shipment, this 110-volt, single phase, model 600 replacement coolant pump is adaptable to any type of coolant in general use, on any type of machine, for single or multiple installations and is easily transferred from one job to another. It can be quickly installed by any shop man. Its ⅛-horsepower Nema motor is designed to do work that formerly required ¼-horsepower motor. Capacity is up to ten spindles or cutting tools. Flow of coolant is regulated from drop or two to 1200 gallons per hour.

If desired, tank measuring 12 x 12 inches with built-in baffle separator to collect heavy chips of metal carried by returning coolant fluid can be furnished with pump. Tank is heavily galvanized sheet iron painted machinery gray outside, with removable lid to permit easy cleaning without disconnecting return piping. Made by **Brady-Penrod, Inc.,** 1202 W. Second St., Muncie, Ind.

▲ Mention Item NED-2511 when writing ▲

HYDRAULIC WORK TABLE

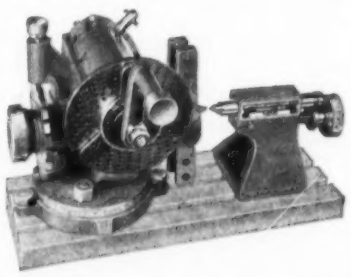


Developed especially for attachment to Doall contour sawing machines, this hydraulically operated auxiliary work table greatly increases machining range of this sawing equipment. Full control of work feed is exercised by operator through conveniently located controls. This mechanism is particularly suited to contour sawing, filing and polishing operations on extra large parts. Developed by **Continental Machines Inc.,** 1314 Washington Ave., S., Minneapolis, Minn.

▲ Mention Item NED-2512 when writing ▲

SWIVEL DIVIDING HEAD

Equipped with three indexing plates, one rapid indexing plate and tailstock, this swivel base dividing head has work capacity up to 7½-inch diameter. Adjustment is possible within one degree for full 360 degrees in horizontal plane. Index operates by means of worm and worm gear which provides 40 to 1 ratio. Practically any divisions can be obtained through use of index plates which are furnished. Device is suitable for use in ½-inch T-slots of tables of practically all types of machine tools. Made by **Jefferson Machine Tool Co.,** 670 W. Fourth St., Cincinnati, Ohio.



▲ Mention Item NED-2513 when writing ▲

★ Sta-Warm ★
POURING HEATERS for Pitches and Compounds

Portable type. Much in demand these times for sealing packing cases as well as many other uses. Heating element distributes heat uniformly to valve outlet. Selective control with rheostat 110 and 220 volts.

★

Stationary type, mounted on standard for production work; hand or foot operated. Heat is evenly distributed around side and bottom. No overheated spots to spoil material. Heated outlet insures free flow. Interchangeable needle valve gives any desired rate of flow.

Write for full particulars.

STA-WARM ELECTRIC CO.
130 N. CHESTNUT ST. • RAVENNA, OHIO

▲ Mention Item NED-2514 when writing ▲

We like the "TOUGH" and "FUSSY" jobs!

FINDING ways to solve the "unusual" problems in springs and wireforms is a "usual" task for Accurate engineers. They like to tackle the problems that demand imagination in tooling and production planning — and in testing and inspection devices, many of which are built especially for the job. Accurate engineers and production men have the experience and "know how" that offer short cuts to time, labor and material savings.

No requirements of a spring user are too exacting for Accurate Service — no problems too complex. Accurate customers know that — and if you have spring or wireform problems you will be pleased to discover it too. Send in your specifications or ask to see an Accurate engineer. You will like Accurate cooperation, quality and service.

Send for the Accurate "Handbook on Springs"— it's convenient to use and informative — free, of course!

Accurate Springs

ACCURATE SPRING MFG. CO., 3805 West Lake Street, Chicago

▲ Mention Item NED-2515 when writing ▲

Get This NEW Booklet Just OFF the Press

IT ANSWERS the questions asked by hundreds of concerns anxious to do metal finishing jobs faster, better, at lower cost per piece.

"Blue Print for Faster, Better Production" tells how to do those jobs in *seconds* rather than minutes. *How much* all the new gadgets of Metalite Cloth cost. Shows them actually at work saving time and money on important wartime production jobs.

A request on your letterhead will bring as many copies as are needed for your various Departments.

BEHR-MANNING · TROY, N.Y.
(DIVISION OF NORTON COMPANY)
Quality Coated Abrasives Since 1872

This offer good only in U. S. A.

▲ Mention Item NED-2516 when writing ▲

THESE 3 Westco ADVANTAGES MEAN IMPORTANT SAVINGS IN YOUR PUMPING JOBS!

TWO-STAGE PERFORMANCE AT SINGLE-STAGE COST

PERMIT FUTURE EXPANSION OF SYSTEM

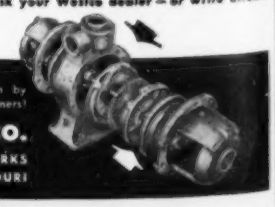
PROVIDE STANDBY PROTECTION AT LOWEST COST

▶ Because of the unique turbine design of Westco Pumps, a *single*-stage Westco will continuously supply high operating pressures that would require a *two*-stage centrifugal pump. Thus, Westcos save on *first* cost...on *operating* cost...*on maintenance!*

▶ Westco operating characteristics are such that additional outlets can be handled with *decreasing* horsepower requirements... whereas centrifugals would require *additional power* to maintain operating efficiency. In this way, Westcos reduce *both* cost of expansion and cost of operation if future additions to system become necessary.

▶ Westco's *renewable liner* feature eliminates need for an entire separate pump assembly for safe standby protection. By simply keeping an extra liner assembly on hand, Westcos can be quickly and economically renewed at a *fraction* of ordinary cost.

But get the full Westco story of peak performance at unusually low installation and operating costs before you invest in ANY pump equipment. Ask your Westco dealer — or write direct!



On Westco Pumps, wear and corrosion are taken by *renewable* liners. To renew pump, simply renew liners!

WESTCO-POMONA PUMP CO.
DIVISION OF JOSHUA HENDY IRON WORKS
2621 LOCUST AVENUE, ST. LOUIS, MISSOURI

▲ Mention Item NED-2517 when writing ▲

THE NEED for blackout coatings on glass, concealment coatings on steel tanks, camouflage coatings on concrete drives and runways, raises many new and unusual coating requirements — non-reflectivity, wear and weather resistance, easy applicability, *low cost*.

Recent development of BAKELITE C-9 Resins has enabled protective coating manufacturers to formulate water-emulsion camouflage coatings that are especially well-suited to these requirements. While requiring only water to extend them to brushing or spraying consistency, these flat-drying paints in actual tests have demonstrated *twice* the abrasion resistance demanded by government standards, and almost *six times* the weather resistance of a commercially acceptable water paint.

Bakelite Laboratories will be glad to supply further information on low-cost water-emulsion coatings based on these C-9 resins. Write Department 16 for a list of protective coating manufacturers now supplying these finishes.

BAKELITE CORPORATION
Unit of Union Carbide and Carbon Corporation
UCC
30 East 42nd Street, New York

BAKELITE
TRADE MARKS
The word "Bakelite" and the identifying products symbol are registered trade-marks of Bakelite Corporation

Resins for Protective Coatings

▲ Mention Item NED-2518 when writing ▲

Get 1943 Catalog and start planning. Stave or Monolithic . . . Any size.

STORE—
COAL
COKE
SAND
GRAVEL
LIME
CLAY
ALUMINA
MAGNESIUM
GRAIN, ETC.

•

THE NEFF & FRY COMPANY
CAMDEN • OHIO

There certainly is . . . for those who can furnish a preferred rating . . . and scores of factories are doing that very thing.

Yes, the concrete and steel is available, since bins are considered essential to the war effort . . . for storage of coal and other bulk materials . . . any bulk material that will flow.

NEFF & FRY STORAGE BINS

▲ Mention Item NED-2519 when writing ▲

MACHINE HOURS
—how to increase same!

Do the obvious thing. Put on *Servis Recorders*. • This little *Servis Recorder* "rides" right on the machine, 24 hours a day. It records on a chart *when* the machine is busy, *when* it is standing idle, and *how long*. Then the chart is laid on your desk. Then you can *really see* your own factory, *see* what's going on! • This very thing is being done today in war plants all over the country. Simple? All worth-while things are simple. The *Servis Recorder* bolts or clamps right on the machine itself—no ink, no pencils, no electric wires. Send for folder—"*A Busy Plant.*" The Service Recorder Co., 1375 Euclid Ave., Cleveland, Ohio.

▲ Mention Item NED-2520 when writing ▲

FIRST AID TRAINING

Intended to speed up first aid instruction in war production industries, visualized first aid training system is designed to facilitate work of instructor. System consists of series of 20 slidefilm productions, two of which are produced in Technicolor. There is total of 1,072 individual pictures in series. With each filmstrip there is synchronized lecture on disc record and printed text book. Teacher's guide is also part of kit. Basic material is official and approved, it is claimed. Course should not be used alone to prepare factory workers to meet accident emergencies but to supplement instruction of nurse or doctor conducting classes. Available from **The Jam Handy Organization**, 2821 E. Grand Blvd., Detroit, Mich.

▲ Mention Item NED-2521 when writing ▲

BUS-DROP CABLE

Carrying power from bus bar to individual motor driven machines in war production plants, loom bus-drop cable consists of three stranded conductors, rubber insulated and braid-

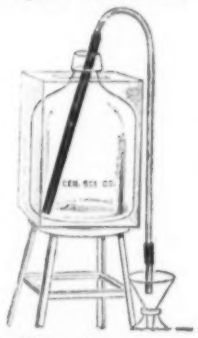
ed, and bare stranded ground wire. These conductors are cabled with saturated jute fillers and presaturated paper and tape. Over all is long wearing rugged loom weave with finish that resists oil, grease, gasoline, moisture and is flame retarding.

Cable can be used in new or conversion wiring or as maintenance item. It can be hooked up easily and quickly in LVD or bus-duct systems. It is designed for long life under severe conditions such as vibration and rough usage. Made by **General Electric Co.**, Wire and Cable Section of Appliance & Merchandise Dept., 1285 Boston Ave., Bridgeport, Conn.

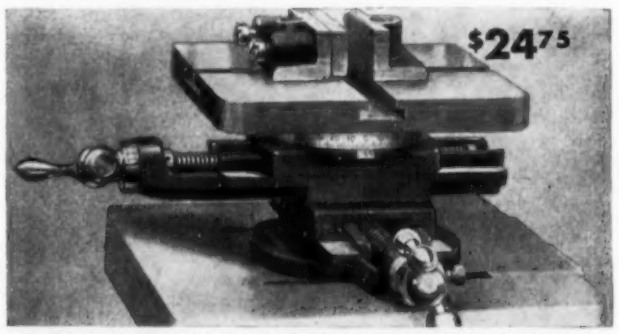
▲ Mention Item NED-2522 when writing ▲

ACID SIPHON

Designed to prevent serious accidents among industrial workers handling carboy acids or other dangerous liquids and to avoid waste in handling expensive liquids and chemicals, safety siphon employs principle of allowing free flow of liquid with instantaneous control. Hazards of pouring directly from carboys are well known and low pressure pumps sometimes produce enough pressure to cause carboys to burst. Siphon is made entirely of Saran plastic tubing. It is not only acid and corrosion resistant, but is flexible with tensile strength of steel. Made by **Central Scientific Company**, 1702 Irving Park Rd., Chicago, Ill.



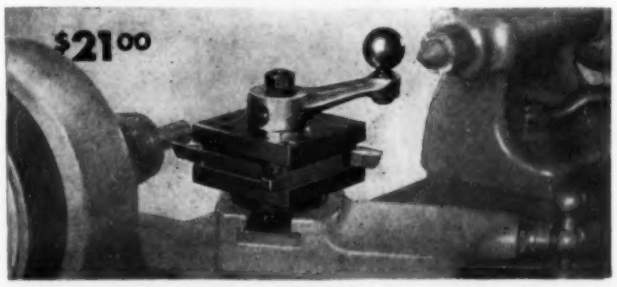
▲ Mention Item NED-2523 when writing ▲



Mastercraft Drill Press Table. For precision drilling, layout, and light milling operations on the drill press. $24.75 complete. W. P. B. priority regulations.

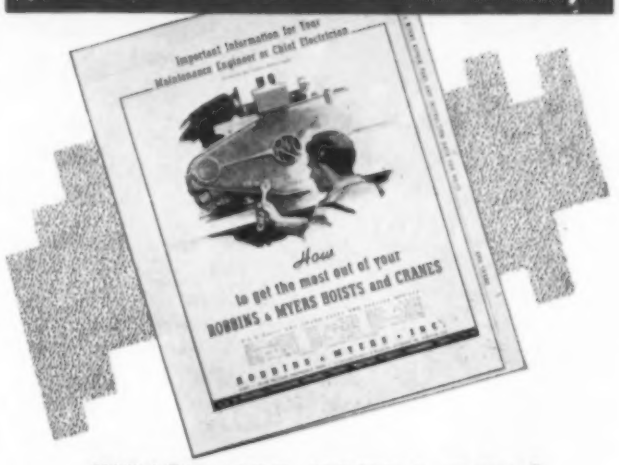
F & M SALES COMPANY
MANUFACTURERS • 1054 CAHUENGA, HOLLYWOOD, CALIF.

Mastercraft 4-way Turret Tool Post. One model only. For South Bend, Sheldon, Clausing, Atlas, Logan and similar bench and floor lathes and small screw machines. $21.00. Immediate delivery.



▲ Mention Item NED-2524 when writing ▲

Free NEW FOLDER
HELPS "KEEP 'EM HOISTING"!



WRITE FOR YOURS NOW!

This new folder, carefully prepared by R & M Hoist engineers, will enable you to *prevent* breakdowns that might hamper production. In addition to providing complete, practical information on the various phases of maintenance, it is designed to serve as a *permanent* file for your hoist parts lists, diagrams, instruction sheets, etc. Write to:

ROBBINS & MYERS, INC.
HOIST & CRANE DIVISION, SPRINGFIELD, OHIO

▲ Mention Item NED-2525 when writing ▲

Solderless TERMINALS with INSULATION SUPPORT

This engineered terminal is being used in great quantities by the Aircraft, Electronic, Electrical, and Marine Industries . . . Get the facts about saving MAN HOURS on your Solderless Wiring. All details are yours for the asking. Write today for Bulletin 19—The AMP System of Solderless Wiring.

AIRCRAFT-MARINE PRODUCTS INC.
DEPT. N, 296 N. BROAD ST., ELIZABETH, N. J.

Canadian Representatives: A & M Accessories Toronto, Ontario

A-MP

▲ Mention Item NED-2526 when writing ▲

▲ Mention Item NED-2527 when writing ▲

VICTORY

DATING AND IDENTIFYING WITH CUNNINGHAM SAFETY STEEL SYMBOLS

To know how long your products have been in customer's service or for identifying employee's piece work—Cunningham Safety Steel Symbol Stamps do the job dependably—without spalling or mushrooming.

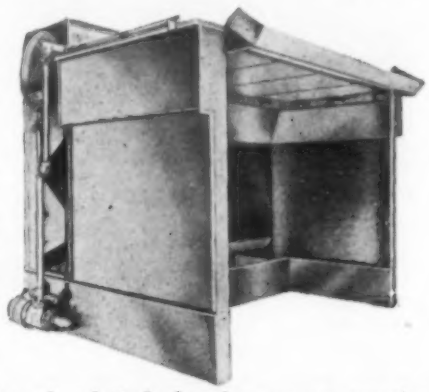
Consult Cunningham for your standard and specialty requirements—Write for complete list of available symbols.

M.E. CUNNINGHAM CO.
SAFETY STEEL STAMPS
115 E. Carson St., Pittsburgh, Pa.

▲ Mention Item NED-2528 when writing ▲

WATER WASH SPRAY BOOTH

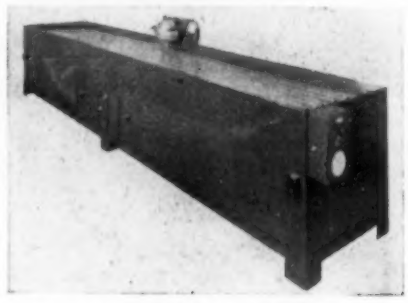
Developed to meet mass production spray finishing requirements, Type FLRS-7 standardized floor model Aqua-Restor paint spray booth features rear and side water-impingement walls. Design permits maximum painting speed with fire hazards reduced to minimum.



In operation, side and rear walls are continuously covered with sheet of water. Paint particles are readily reclaimed. Because water is used over again through relatively low horsepower pumping unit, this equipment is economical to operate. Model illustrated is equipped for fluorescent lighting of work. Made by **Mayer Manufacturing Corp.**, Aqua-Restor Div., 56 Division Place, Brooklyn, N. Y.

▲ Mention Item NED-2531 when writing ▲

HYDRAULIC TEST BENCH



Constructed for use by two operators at one time, model T-102 stationary hydraulic test bench is designed for checking tubing and hydraulic equipment prior to assembly into aircraft. If required, third operator can work from accumulator hook-up. Variable test pressure ranging from 0 to 10,000 pounds per square inch is available. Variable delivery pumping unit will deliver up to 12 gallons per minute.

All controls are readily accessible on face of machine or on abbreviated instrument panel. Made by **Hydraulic Machinery, Inc.**, 12825 Ford Rd., Dearborn, Mich.

▲ Mention Item NED-2532 when writing ▲

STORAGE TANK SEAL VENT

Designed for installation on storage tanks, Conser-Vent is liquid seal type vent valve which minimizes evaporation loss of volatile petroleum products in storage. It also protects tank and its contents against excessive pressure and vacuum. No mechanical parts are used, oil seal serving as liquid valve.

Normal breathing of tank's contents causes liquid seal to rise and fall. When withdrawal of gasoline or drop in temperature causes vacuum, air bubbles through oil seal into storage tank. Made by **Conservation Equipment Corp.**, Blum Bldg., 624 S. Michigan Ave., Chicago, Ill.

▲ Mention Item NED-2533 when writing ▲

ACCEPTED STANDARD for Wear Tests By Industry

● The Taber Abraser provides the required standard, constant tests to accurately compare and evaluate wear qualities of surface finishes and fabrics. Scientific wearing action by two rotating "Calibrase" wheels against a 4" specimen mounted on revolving turntable, is recorded in terms of "wear cycles" on built-in counter. Use the Taber Abraser as your standard for wear tests. Write for Bulletin 2014 NOW.

TABER INSTRUMENT CORPORATION
111ND GOUNDRY STREET, NORTH TONAWANDA, N. Y.
Designers and Builders of Scientific and Precision Apparatus

▲ Mention Item NED-2535 when writing ▲

NEW! WALES STRIPPITS

Showing Wales Strippits in die

Close-up Wales Strippit

● Wales Strippits (Spring Stripper Units) are self-contained self-aligning with spring held compressed by retainer and assembly link. They make possible removing stripper plate and replacing punches without disturbing the set-up . . . even pressure over stripper plate . . . using thinner, less expensive stripper plates . . . more compact, simplified, economical die set . . . and eliminate stripper plate for stripping scrap from die.

Available in 2½" to 6" lengths. Have a stock on hand! They are inexpensive! Write for catalog NOW.

WALES-STRIPPIT CORPORATION
GEORGE F. WALES, President
NORTH TONAWANDA, N. Y.
Specialists in Punching and Notching Equipment

▲ Mention Item NED-2536 when writing ▲

Remember RITCO for DROP FORGINGS

THE AXIS CAN'T FORGET...

RITCO Forgings, as vital production parts, are serving America and her allies . . . and serving well! When Victory comes, RITCO's die sinking and drop forging facilities will again be available to forge your postwar products.

Remember RITCO for
SPECIAL BOLTS, NUTS & STUDS
DROP FORGING & DIE SINKING
SCREW MACHINE PRODUCTS
SPRAYED METAL SERVICE
HEAT TREATING • PARKERIZING
Estimates gladly submitted. Send samples or blueprints. Catalog on Request.

RHODE ISLAND TOOL CO.
148 West River St., Providence, Rhode Island
Serving American Industry Since 1834

RITCO

▲ Mention Item NED-2529 when writing ▲

SPEED UP PRODUCTION

Only 3 Minutes After Tracings Leave Your Drafting Boards PERFECT BLUE PRINTS or Black & White Prints are Ready for Use. No more delays waiting for deliveries of prints at excessive costs.

With VICTORAY Your Cost of Blue Prints will be approximately 1c per square foot.

Check this against your present cost. VICTORAY makes professional prints. Can be operated by any novice. Printing is done in daylight.

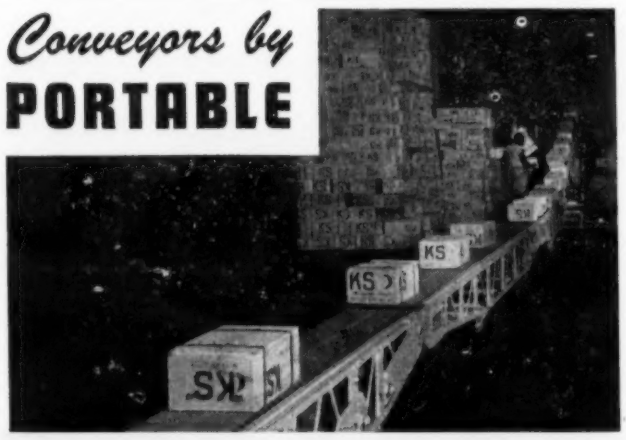
LIFE OF LAMPS 1200 PRINTING HOURS
Renewal cost of set of lamps $1.60

Net Price with Accessories and Lamps $127.50
Sample Supply of Paper & Developer Included
Immediate Delivery on Extended Priorities

VICTORAY CORPORATION
OFFICES AND PLANT, BATTLE CREEK, MICH.

▲ Mention Item NED-2530 when writing ▲

Conveyors by PORTABLE



ARMY E NAVY
Awarded Feb. 8, 1943

Speeding goods on the way to war — in factories, warehouses and right into the holds of ships—are Farquhar built Conveyors. Designed to handle any type of material—in boxes, bags or loose—either portable or stationary conveyors are cutting down necessary man hours in every place they are serving. Your handling problems can be speeded with Farquhar Material Handling Conveyors. Want evidence?

Portable Machinery Division
A. B. FARQUHAR CO., Limited
Chicago, Ill. York, Pa. Clifton, N. J.

▲ Mention Item NED-2534 when writing ▲

Keep Your Surface Plates Accurate

Lombard re-scraping makes your old Surface Plates as good — and often times better-than new. All of the facilities which have made Lombard inspection plates a symbol for accuracy are now available for re-scraping, and machining old Surface Plates. This includes heat treating when necessary and essential hand work. Prices are reasonable and costs at a minimum. Prompt delivery.

LOMBARD GOVERNOR CORPORATION
150 MAIN ST. ASHLAND, MASS., U. S. A.

▲ Mention Item NED-2537 when writing ▲

For

COOLING
WASHING
SPRAYING
QUENCHING

Use

SPRACO Center-Jet NOZZLES

Spraco Center-jet Nozzles deliver a solid full cone spray of uniform distribution over the area covered. They are particularly suited to processes involving quenching, cooling, washing, and spraying. We can furnish these nozzles in brass, bronze, stainless steel, or any other machinable metal specified, in a wide range of sizes and capacities.

Other types which we manufacture include nozzles to produce hollow cone sprays and flat fan-shaped sprays, together with two fluid nozzles for mixing two fluids, or a fluid and a gas. For complete descriptions and performance data write for NOZZLE CATALOG.

SPRAY ENGINEERING CO.
106 Central St. Somerville, Mass.

▲ Mention Item NED-2538 when writing ▲

Faster Metal Sawing!

Check These Features!

Metal sawing is no longer a problem for plant production men who rely on the Johnson Saw; the speed, accuracy and efficiency of this machine make delivery schedules easier to meet. Quick set-ups; unlimited adaptability and flexibility for almost all cutting jobs. 3-point base compensates for uneven flooring. PROMPT DELIVERIES!

Write today for descriptive folder to Sales Office, 5000 Chrysler Building, NEW YORK

CUT PIPING

CUT GIRDERS

CUT SOLIDS

JOHNSON METAL CUT-OFF BANDSAW

Johnson Manufacturing Corp. Albion, Michigan

▲ Mention Item NED-2539 when writing ▲

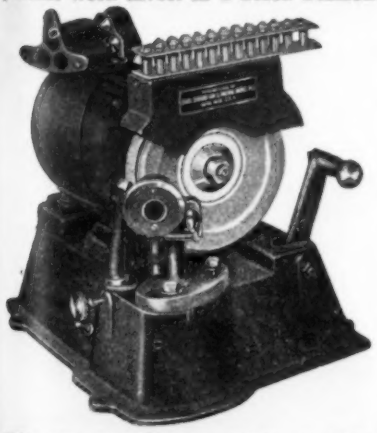
BLACK DIAMOND
• PRECISION DRILL GRINDERS •

CONSERVE TIME AND SKILLED LABOR SAVE 50% AND MORE ON DRILL GRINDING

War Production plants throughout the Nation are proving the value of Black Diamond Drill Grinders for sharpening small gauge and fractional drills at minimum cost.

A few minutes instruction *makes the most unskilled operator an expert* on production of quantities of perfectly sharpened drills with lips of uniform length, correct angle and clearance.

To speed war production and save expensive drill stock—to reduce drill breakage and release skilled labor for more important work invest in a Black Diamond Precision Drill grinder at once.



Such an investment literally pays for itself in savings in very short time.

SAWS BLACK DIAMOND TOOLS

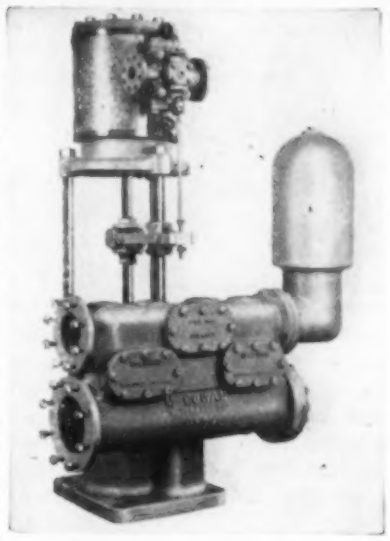
The Diamond Dresser keeps the grinding wheel sharp cutting and the Web Thinning Attachment efficiently cares for the grinding of Notched, Colton or Crankshaft points.

Write at once for complete details.

BLACK DIAMOND SAW & MACHINE WORKS, INC.
NATICK, MASSACHUSETTS

▲ Mention Item NED-2540 when writing ▲

VERTICAL MARINE PUMP



Designed for all shipboard services, McGowan vertical marine pump has liquid end of cast iron, steel or bronze trimmed to suit service conditions. Entire pump can be opened without disturbing piping or moving off its foundations. Piston and liners can be easily inspected. Design has been engineered for easy maintenance. This pump is one of complete line of vertical and duplex pumps. Made by **Leyman Mfg. Corp.**, McGowan Pump Div., 5 Central Ave., Cincinnati, O.

▲ Mention Item NED-2541 when writing ▲

PAPER MASKS AND CAPS

Offering protection from dusts and moving machinery, Aldex dust masks and caps are made of vegetable fiber paper product which can be stitched, washed and ironed like fabric.

Masks promote efficiency by protecting workers from non-toxic nuisance dusts. Wearers breathe freely and may converse without removing mask. Caps protect hair of both male and female workers from dust-laden air, moving machinery or both. In food and drug processing and packaging operations they prevent loose hair contaminations. Drawstring feature allows adjustment to all head sizes. Made by **Aldine Paper Co.**, 373-375 Fourth Ave., New York City.

▲ Mention Item NED-2542 when writing ▲

AIRCRAFT STEEL WELDING

Welding of chrome-molybdenum steel for aircraft applications is readily accomplished by Castolin Eutectic low temperature process with alloy No. 16 rod. This material makes possible use of 1300 degree Fahr. welding temperature as substitute for arc, gas welding and brazing. High production speeds are possible with less skilled workers.

Delicate clusters and tubing assemblies are easy to join because of free flowing properties of alloy. Distortion and overheating are eliminated. There is no change in structure of steel. Chrome-molybdenum steel can be joined to malleable and cast iron without having brittle joint. Tensile strength on chrome-molybdenum steel is as high as 117,000 pounds per square inch. Made by **Eutectic Welding Alloys Co.**, 40 Worth St., New York City.

▲ Mention Item NED-2543 when writing ▲

Versatile MATERIAL

The long list of uses to which plastics can be put in war industries is growing daily. The unique qualities of laminated Textolite make it applicable for use in every field. G-E laminated Textolite is easily punched, machined, sawed, stripped or sheared into an almost unlimited variety of sizes and shapes. The fact that laminated Textolite affords moisture resistance, high dielectric strength, excellent power factor, high dielectric constant, low loss factor and mechanical strength makes it ideal for today's equipment engineer. G-E Plastics engineers will help you in applying laminated Textolite to your product. For information write section H-5, General Electric Company, Plastics Avenue, Pittsfield, Massachusetts.

PLASTICS DIVISIONS

GENERAL ELECTRIC
PD-46A

▲ Mention Item NED-2544 when writing ▲

LIKE CHAINING THE HANDS OF WAR WORKERS

Dermatitis Causes Many Lost Hours of War Production

Hands that cannot work because of Dermatitis might as well be chained. Industrial plant physicians know that Dermatitis is a common cause of absenteeism,—and *agree* that adequate *sanitary washing* is an important step in keeping Dermatitis under control.

Bradley Group Washfountains serve a group of 8 to 10 persons simultaneously, each with clean *running* water with no chance of contamination because the deep bowl is self-flushing to prevent collection of used water.

Clean running water for each of 8 to 10 persons simultaneously. A first step in Dermatitis prevention.

Bradley bowl and pedestal are of pre-cast stone. Piping connections are cut 80 per cent. Write for illustrated Installation Booklet . . . BRADLEY WASHFOUNTAIN CO., 2253 W. Michigan Street, Milwaukee, Wisconsin.

BRADLEY *washfountains*

▲ Mention Item NED-2545 when writing ▲

Insure YOUR PRODUCT *Against Rust* with EVERLASTING FASTENINGS *by* HARPER

YOU CAN insure your product against the ravages of rust and corrosion by using Everlasting Fastenings by Harper. The word, "Everlasting" refers to the alloys —brass, bronze, copper, Everdur, Monel and stainless steel. "Fastenings" refers to bolts, nuts, screws, washers, rivets and related "specials." For all practical purposes, they last forever.

Although the first cost of Everlasting Fastenings may be slightly more than the price of common steel or iron fastenings, the total cost is far less. Harper's Fastenings save hours and hours of time and labor required to replace rusted common steel bolts, they prevent failures of vital equipment and they keep production rolling regularly. They are not affected by ocean salt, tropic sweat, certain acids and alkalies and other tough conditions.

The H. M. Harper Company is the leading organization in America concentrating exclusively on fastenings made of the non-ferrous and stainless alloys.

4320 STOCK ITEMS

. . . of bolts, nuts, screws, washers, rivets and accessories in the non-ferrous and stainless alloys.

WRITE FOR CATALOG

. . . and reference book—80 pages—4 colors — 193 illustrations — numerous tables and other data. Free when requested on a company letterhead.

THE H. M. HARPER COMPANY
2628 FLETCHER STREET, CHICAGO
Eastern Branch:
45 WEST BROADWAY, NEW YORK CITY
Offices in Principal Cities

HARPER *Chicago*
EVERLASTING FASTENINGS
BRASS ★ BRONZE ★ COPPER
EVERDUR ★ MONEL ★ STAINLESS

▲ Mention Item NED-2546 when writing ▲

Industrial

DIAMOND TOOLS

The STA-KOOL Single-Point Tool is equipped with internal coolant ducts and external cooling fins to quickly dissipate the heat, thus prolonging tool life.

SMITITE Diamond Dressing Tools employ a sintered metal setting, which firmly holds the stones till they are completely consumed.

Catalogs on request.

J. K. SMIT & SONS

157 Chambers St., New York, N. Y. 6400 Tireman Ave., Detroit, Mich.

▲ Mention Item NED-2548 when writing ▲

SECOMET

DIAMOND WHEELS

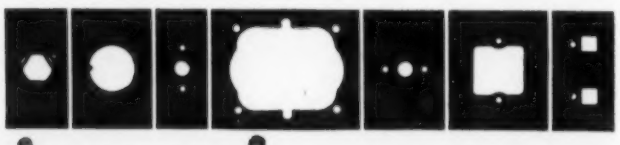
can do your work more accurately, faster and without appreciable wear. They are most economical for sharpening cemented carbide and multi-blade tools, such as milling cutters, broaches, etc. Moreover, their sharp, free-cutting action eliminates lapping and the usual semi-finish grinding operation.

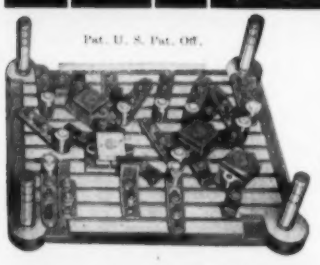
Catalog on request.

J. K. SMIT & SONS

157 Chambers St., New York, N. Y. 6400 Tireman Ave., Detroit, Mich.

▲ Mention Item NED-2549 when writing ▲





WHISTLER

ADJUSTABLE

DIES

•

Precision Perforating and Notching

READY FOR PRODUCTION

Multiply the production of your presses. More holes in given area—reduces "down" time—years of use in different pattern arrangements—complete interchangeability of parts—no special tools—in all standard sizes from 1/32". Whistler dies, tools and production machinery are used the world over.

Every Production Executive should have this Catalog. Write:

S. B. WHISTLER & SONS, Inc.

752-756 MILITARY ROAD BUFFALO, N. Y.

▲ Mention Item NED-2550 when writing ▲

FLUORESCENT FIXTURE

Complying with WPB limitations order, this 40-A series industrial fluorescent lighting unit contains less than 3 pounds of steel. Masonite reflector is finished so as to afford maximum light. Fixture may be surface, chain or pipe mounted individually, or several units may be combined in continuous runs.

Wireway is of metal construction and is so designed that it may be exposed completely for easy installation and maintenance. Fixtures are available for two 40-watt, three 40-watt, four 40-watt or two 100-watt lamps. Louvers of Klasium white enameled Masonite may be added where shielding is desirable. Made by **Lighting Products, Inc.**, 1225 Deerfield Rd., Highland Park, Ill.

▲ Mention Item NED-2551 when writing ▲

SCREW CONVEYOR TROUGH

Saving substantial percentage of metal over all-steel models, screw conveyor trough is combination of steel trough bottom, wood sides and wooden cover board lag screwed together to form complete, tight enclosure for screw and material it conveys. Unit is adapted to all standard screw conveyor fittings; will readily connect with existing steel trough; and can be shipped with sides and bottom assembled. Curved bottom will be made of steel no heavier than No. 10 gauge, and has added advantage of being removable by unscrewing of lag screws securing it to wooden trough sides, thus facilitating cleaning and replacement. Made by **Link-Belt Co.**, Dept. NED, 307 N. Michigan Ave., Chicago, Ill.

▲ Mention Item NED-2552 when writing ▲

FLUSH VALVE

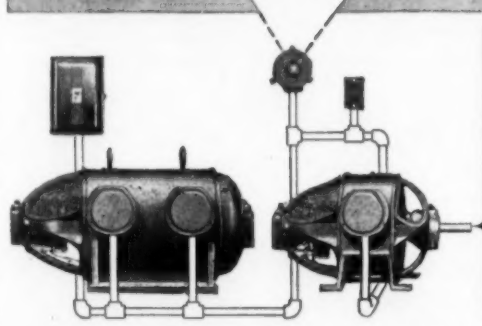
Using minimum of critical war materials, this V model Watrous flush valve is said to conform to material conservation requirements of War Dept. specification PE-623 and is approved for use on government projects. General appearance is same as previous standard models and dependability of service is unchanged. Natural metal finish is used. Alternate materials used in place of brass, bronze and other critical materials have been selected with care. All vital working parts remain of brass. Made by **The Imperial Brass Mfg. Co.**, 1236 W. Harrison St., Chicago, Ill.

▲ Mention Item NED-2553 when writing ▲

10-TO-1

SPEED RANGE

FROM A-C POWER



1 TO 15 HP DRIVE FOR LATHES . . . MILLS . . . . CONVEYORS PUMPS - FANS STOKERS . . *and other adjustable speed applications*

Here's the new, low-cost way to get adjustable speed, constant torque drive from a-c power. The Westinghouse Adjustable Speed A-C Drive provides instant speed adjustment from 175 rpm to 1,750 rpm for continuous operation--slower speeds for starting or setup. No exciters, clutches or complicated control. Push button starts or stops the drive—a single rheostat controls the speed. Nothing else to buy. Write for bulletin DD-4063. Westinghouse Electric & Manufacturing Company, East Pittsburgh, Dept. 7-N.

J-21171

Westinghouse

A-C ADJUSTABLE-SPEED DRIVE

▲ Mention Item NED-2554 when writing ▲

INDUSTRIAL "TRICKS"

with Spencer Vacuum

Removing enamel dust with a Spencer Vacuum System

Tank and plane manufacturers remove bolts, nuts, etc., after assembly and to clean before painting.

In watch factories gold dust is trapped in the room where it accumulates. Reclamation paid for the equipment in a few weeks.

A painting contractor removes sand by the ton from the holds of ships and rabbit fur is collected, segregated and reclaimed in a New York fur plant.

Solder is gathered around auto assembly lines and tons of babbitt picked out of engine heads as they pass by on the production line.

The same equipment will clean floors, walls, and machinery in less time. Get the facts from our Bulletins.

243 C

SPENCER VACUUM CLEANING

HARTFORD

THE SPENCER TURBINE COMPANY, HARTFORD, CONN.

▲ Mention Item NED-2555 when writing ▲

STOP this waste of Hand-Power

It isn't "Man-Power" without "Hand-Power". You can cut your absenteeism (and your injury expense) by protecting the hands of men and women employees with

Stanzoils

of Oil-and-Acid Safe Neoprene

Stanzoil Gloves resist damage from oils, acids, caustics and other harmful materials, give better protection, often last 3 to 7 times as long as rubber gloves. Made in sizes, weights, styles for all needs, black and white. Avoidable accidents are unpatriotic—write now for facts and delivery data.

STANZOIL PIONEER

Synthetic Rubber Division

THE PIONEER RUBBER COMPANY

248 Tiffin Road, Willard, Ohio, U.S.A.

New York · Los Angeles

MADE WITH DU PONT NEOPRENE

▲ Mention Item NED-2556 when writing ▲

Don't BURN Paper CONVERT IT!

AIRFLUFF PAPER SHREDDER MAKES EXCELSIOR OUT OF CONFIDENTIAL PAPERS, BLUEPRINTS OR ANY WASTE PAPER

Here's the machine that destroys paper yet saves it! The AIRFLUFF Paper Excelsior Shredder, easily shreds, separates and fluffs old newspapers, confidential papers, blueprints, magazines, waste paper, corrugated cartons, tissue, Cellophane and waxed paper. Low price, simple to install. Power and maintenance cost less than 2c per 100-pound bale. Absolutely safe—present employees can easily operate. Cuts in widths from 1/8" to 3/8". Model No. 14 shreds 600 to 1800 lbs. per hour. Model No. 10 shreds 200 to 800 lbs. per hour. Write today for prices and complete facts about these remarkably simple, sturdy and efficient new AIR-FLUFF Paper Shredders.

WRITE TODAY

MITTS & MERRILL • SAGINAW, MICH.

1000 SOUTH WATER STREET

BUILDERS OF MACHINERY SINCE 1854

▲ Mention Item NED-2557 when writing ▲

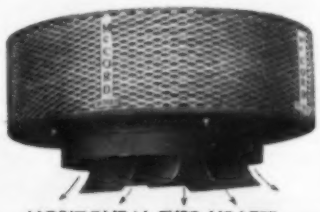
Better Heat Distribution WITH McCORD Unit Heaters

VERTICAL TYPE HEATER

More Heat . . . Better Distribution

More heat, better distribution is the answer to any heating problem. McCord, because there is a model and type to meet each particular condition, will do a better heating job. Every improvement that engineers and the experience of many users could suggest is incorporated in the improved models of McCord Unit Heaters. Due to the design and careful attention to balance a new degree of quietness has been attained. The scientifically designed all copper spiral fin tube heating surface provides maximum heat transfer capacity.

McCORD RADIATOR & MFG. CO.
2580 E. Grand Blvd.
Detroit, Mich.



HORIZONTAL TYPE HEATER

Specify McCORD ON YOUR NEXT JOB

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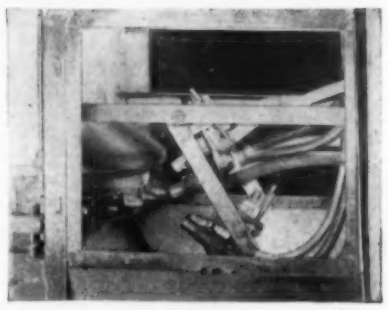
AMMUNITION SHELLS

CLEANED
INSIDE AND OUTSIDE
AUTOMATICALLY
and at a high rate of speed with
LEIMAN BROS.



ROTATING-FIXTURE, MULTIPLE-NOZZLE

SAND BLAST

Complete outfits are furnished for shells of all calibres and for all other classes of work—Metals, plastics, glass, composition, bakelite, etc.

RAPID DELIVERY TO SPEED WAR SUCCESS

LEIMAN BROS. Inc.
167-2 Christie St. Newark, N. J.

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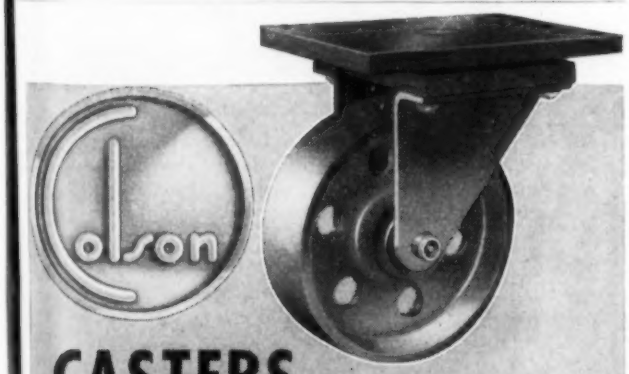


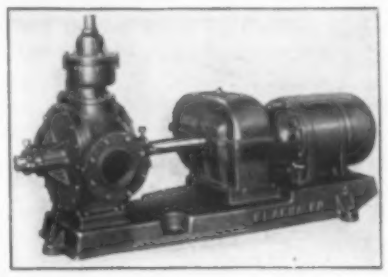
CASTERS
Have what it takes . . .

FOR over 40 years Colson has manufactured casters in hundreds of types and sizes. There's a Colson caster *for every purpose*, and throughout industry where jobs must be done in the shortest possible time, you'll find Colson casters on all kinds of equipment. • Today, we are supplying casters *first* where war needs demand them. Normal channels can be supplied only after war requirements are *fully satisfied*.

THE COLSON CORPORATION
ELYRIA, OHIO
CASTERS · INDUSTRIAL TRUCKS AND PLATFORMS · LIFT JACK SYSTEMS · BICYCLES · CHILDREN'S VEHICLES
WHEEL CHAIRS · WHEEL STRETCHERS · INHALATORS · TRAY TRUCKS · DISH TRUCKS · INSTRUMENT TABLES

▲ Mention Item NED-2560 when writing ▲

ROTARY PUMP

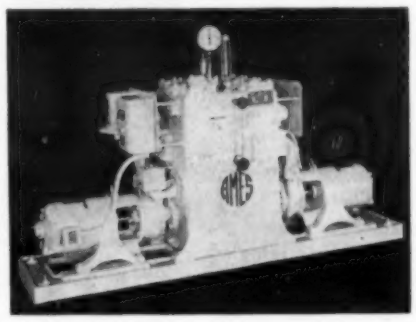


Employing standard swinging vane design, this improved rotary pump features removable liner. Construction is such that when wear affects capacity of unit, worn liner may be removed and new one inserted. This operation involves only removal of pump heads, driving out old liner and inserting new one. Neither piping nor drive is disturbed.

Pumps with removable liners are made in capacities ranging from 20 to 750 gallons per minute and for pressures up to 300 pounds per square inch. These units are particularly adapted for pumping corrosive or mildly abrasive liquids where pump life normally is very short. Made by **Blackmer Pump Co.**, 1976 Century Ave., Grand Rapids, Mich.

▲ Mention Item NED-2561 when writing ▲

VACUUM RETURN UNIT



Adaptable to all types of vacuum heating systems, Super vacuum return units are equipped with Worthington vibrationless pumping equipment. Units are made in ten sizes with ratings of 2500 to 100,000 square feet, equivalent direct radiation. Discharge is sealed against prime water loss and low return is sealed to prevent air leakage into system. Units are made to handle vacuums up to ten inches of mercury. Condensate and auxiliary storage tanks are of cast iron, equipped with packless float lift switch assembly for each motor. Made by **Ames Hydrovac Corp.**, 288 Scholes St., Brooklyn, N. Y.

▲ Mention Item NED-2562 when writing ▲

CHIPPING HAMMER

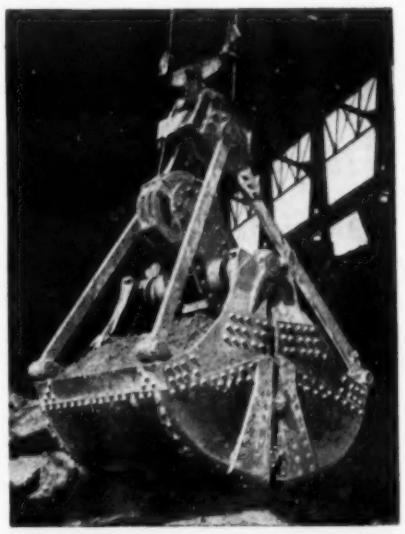
Fitted with interchangeable and replaceable cone, chisel bits and handle, Universal Tomahawk chipping hammer is suitable for all types of weld cleaning. Tool is available in two 10-inch models: standard with weight of 11 ounces and heavy duty with weight of 15 ounces. Snug socket fit of bit shank, positioned and held by set screw, prevents possibility of loosening. Made by **Atlas Welding Accessories Co.**, 307 Boulevard Bldg., 7310 Woodland Ave., Detroit, Mich.

▲ Mention Item NED-2563 when writing ▲

BLAW-KNOX BUCKETS
take the least of your crane time—handle more pay load

Send for the catalog which describes the bucket you need—

- No. 1853—Blaw-Knox Buckets for Cement, Chemical and Fertilizer Plants.
- No. 1696—Blaw-Knox Buckets for Single Drum Hoists for use on Railroads, Mills, Foundries, Etc.
- No. 1745—Blaw-Knox Buckets for "Burtoning" handling Nitrates, Grain, Potash, Etc.
- No. 1757—Blaw-Knox 2 Line Lever Arm Buckets for Rehandling, Barge Cleanup, General Purpose, Hard Digging, Dredging.
- No. 1865—Blaw-Knox 4 Rope Buckets for Coal, Ore and Cleanup.
- No. 1752—Blaw-Knox Buckets for Incinerator Service.



Installation of a Blaw-Knox Bucket at a "trouble-spot" takes that worry off your mind—definitely—for each bucket is tailor-made for its particular job.

For digging and rehandling the many bulk materials throughout industry there's a Blaw-Knox Bucket.

You can select a bucket from the many interesting catalogs listed above.

BLAW-KNOX DIVISION of Blaw-Knox Co.
2068 FARMERS BANK BUILDING, PITTSBURGH, PA.
NEW YORK · CHICAGO · PHILADELPHIA · BIRMINGHAM · WASHINGTON

▲ Mention Item NED-2564 when writing ▲

Expedite production of war work with
HEIN-WERNER HYDRAULIC JACKS

- **Super-Powerful**
- **Easy-Operating**
- **3 to 30 tons capacity**

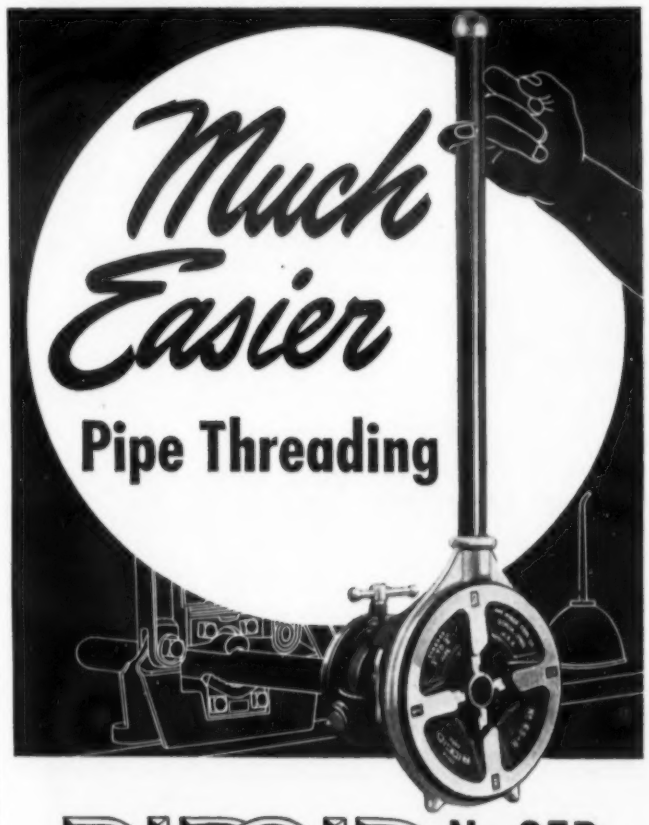
If your factory has jobs involving lifting, pressing, bending, etc.—or machinery to be moved—it's possible that the work can be done quicker and easier with the aid of Hein-Werner Hydraulic Jacks.

Complete H-W line includes hydraulic jacks of 3, 5, 8, 12, 20 and 30 tons capacity . . . For details—consult your industrial supply distributor—or write us...Quick delivery can be made on orders carrying priority rating.

HEIN-WERNER MOTOR PARTS CORP.
Waukesha, Wisconsin

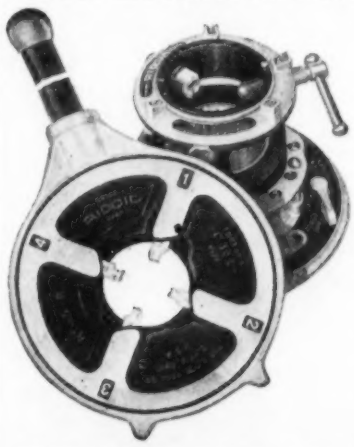
HEIN-WERNER HYDRAULIC JACKS
Are Built Right and Priced Right

▲ Mention Item NED-2565 when writing ▲



RIGID No. 65R
Threads 1" to 2" Pipe with same dies

LOOK at the time and work this No. 65R saves you. One set of chasers gives you smooth perfect threads on 1", 1¼", 1½" and 2" pipe, any metal, any thread variation—no extra chasers to bother with; adjusts to size in 10 seconds. Foolproof workholder sets instantly, only 1 screw to tighten. Because of straight-line action ...handle to head to chasers...it threads so easily you can turn it with your little finger. A durable steel and malleable tool with many other features. Ask your Supply House.

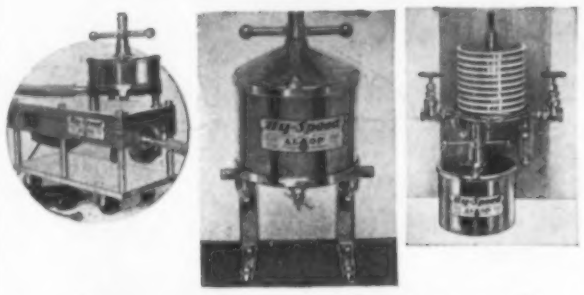


THE RIDGE TOOL CO., Elyria, Ohio, U. S. A.

RIGID
Pipe Wrenches, Cutters, Threaders, Vises
Fast-Working Tools for War..and the Busy Peace Ahead

▲ Mention Item NED-2566 when writing ▲

ALSOP "SEALED DISC" FILTERS
for every Filtering job.



The one sure way to keep liquids clean, with all impurities removed is by "Sealed Disc" Filtration using

ALSOP "HY-SPEED" FILTERS

For Water, Chemicals, all kinds of Oils, plating solutions—any kind of liquids, are completely clarified to do a finer job or make a better product.

Made in portable or pipe line connected units, easy to operate and maintain.

Let us prove these statements
Write to

ALSOP ENGINEERING CORP.
23 Main Street Milldale, Conn.

ALSOP "SEALED DISC" FILTERS

▲ Mention Item NED-2567 when writing ▲

GET QUICK DELIVERIES ON

FRAY *Kurl Kut* **END MILLS**

FOR PRECISION WORK AND LONGER LIFE

Write to Dept T. for catalog

FRAY TOOL & REAMER CO.
a subsidiary of
Fray Machine Tool Co., Inc.
521 W. Windsor Road, Glendale, Calif.
KURL KUT — THE TEST TELLS

▲ Mention Item NED-2568 when writing ▲

THIS ONE MACHINE
Does 3 Things

files **CIRCULAR SAWS**

files **BAND SAWS**

files **HAND SAWS**

FILING SAWS FOR VICTORY

The Foley Filer is in use by U. S. Navy for shipyards, air bases, battleships, navy tenders—by U. S. Army posts and airports—by U. S. Engineers, Light House Dept., Treasury, Mint, Federal penitentiaries,—also hundreds of war and industrial plants.

The Foley Filer is the only machine that sharpens cross-cut circular saws 3" to 24" in diameter, band saws 1/8" to 4-1/2" wide—all hand saws. Your saws will cut faster and truer and stay sharp longer when filed on a Foley Saw Filer. The exclusive patented Foley jointing principle straightens up uneven teeth and makes them perfect in size, shape, spacing. That is why Foley-filed saws increase sawing production 25% to 40%. The Foley also cuts down filing time, saves on files and reduces saw breakage

30-DAY TRIAL OFFER

Find out on your own work how much the Foley Filer can save you. We will send it on thirty days' trial. Send for details today.

FOLEY AUTOMATIC SAW FILER

FOLEY MFG. CO., 23 Second St. N. E., Minneapolis, Minn.
Send full details of your 30-day Trial Offer on the Foley Automatic Saw Filer.

Name .....

Address .....

▲ Mention Item NED-2569 when writing ▲

HAND ARBOR PRESSES

Smooth-acting and sensitive, direct leverage bench type arbor presses are available in 2 and 3-ton capacities. Use of snap ball check permits rapid approach of ram to work. Pressing block is notched with 1⅛, 1⅝, 1⅞ and 2-inch openings. Ample opening and support for work is obtained with large machined table surface. Work capacities range up to 14-inch diameter.

Machined bearings reduce friction and practically eliminate wear. Device is adaptable for assembling, bending, straightening and similar operations. Model is also available in wall type. Made by **Lempco Products, Inc.**, 5682 Dunham Rd., Bedford, Ohio.

▲ Mention Item NED-2570 when writing ▲

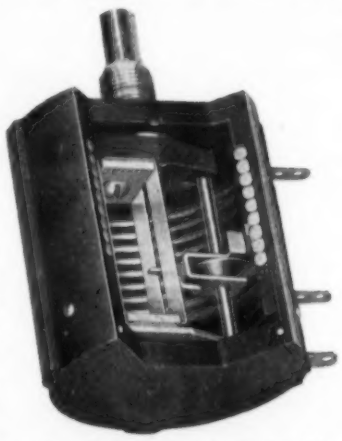
OVERHEAD CONVEYOR

Designed to convey component cartridge parts in tote boxes to remote restricted areas, this overhead conveyor system is over 12,000 feet in length. It is equipped with seven synchronized caterpillar drives and can be lengthened almost indefinitely by adding additional drives, all operated from central station. Installation eliminates use of gasoline trucks. Similar, but shorter, conveyor installation conveys cartridge links. Made by **The Alvey-Ferguson Co.**, 31 Disney St., Cincinnati, O.

▲ Mention Item NED-2571 when writing ▲

POTENTIOMETER-RHEOSTAT

Formerly available only in ranges of 30 to 5000 ohms in three-turn model and 100 to 24,000 ohms in nine-turn model, Helipot potentiometer rheostats are now made in sizes up to 9000 ohms and 30,000 ohms respectively. In addition, special ranges can be supplied on order to meet practically any reasonable requirement. Several new sizes are now available so as to provide wide selection of standard units to meet most applications. Standard construction features of bonded resistance wires and smoothly operating, wheel guided slide contact have been retained. Uniform pressure contact is maintained throughout full range of instrument. Made by **National Technical Laboratories**, 800 Mission St., South Pasadena, Calif.



▲ Mention Item NED-2572 when writing ▲

Protection for Men and Machines

Production will win this war and must not be retarded by "machine breakdowns" or lost man-hours caused by *dust.*

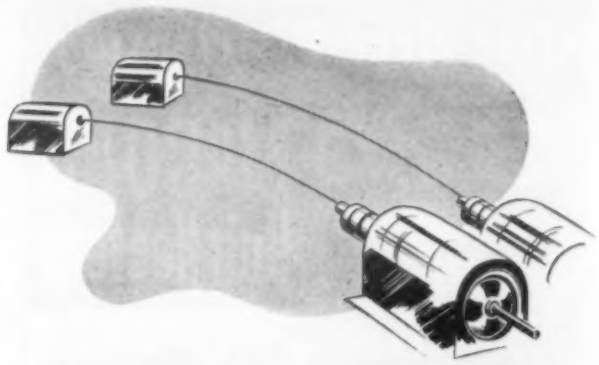
A Torit Self-contained Dust Collector, standing "watch" on your production line, is your assurance against this menace.

Torits are portable, self-contained units, are economical to operate, simple to install, wherever grinding, buffing and cut-off machines are operated.

Write today for detailed information.

TORIT MANUFACTURING CO.
298 Walnut Street St. Paul, Minnesota

▲ Mention Item NED-2573 when writing ▲



They Make the Supreme Sacrifice

In order to determine that the wire used will make the best springs to serve the needs of our armed forces, certain samples must be whirled to destruction by "Rotating Beams." The rotating beam test establishes the fatigue quality of the wire, the uniformity and reliability of wire sources, and the effects of plating and other finishes. Hunter scientifically finds ONE right spring for the job, will make it to your specifications or design it for you.

HUNTER PRESSED STEEL CO., LANSDALE, PENNSYLVANIA

HUNTER
Science in Springs

▲ Mention Item NED-2574 when writing ▲

Looks you straight in the eye!

● Roll a load on the platform of a Fairbanks-Morse Scale . . . quickly the pointer comes to rest and the easily read dial looks you squarely in the eye. It is *right.*

Repeat this operation until hours add up to weeks, and weeks add up to years. The Fairbanks-Morse Dial still looks you straight in the eye, still tells you the truth — and the whole truth.

Sturdy construction withstands rough usage. There are no springs or delicate parts. Gaskets exclude dirt from the dial housing. Pivots and bearings are made of hardened tool steel. Bearings, loops, and nose irons are rust resistant. And 113 years of scale building experience synchronizes *all* features into a good scale that *stays good.*

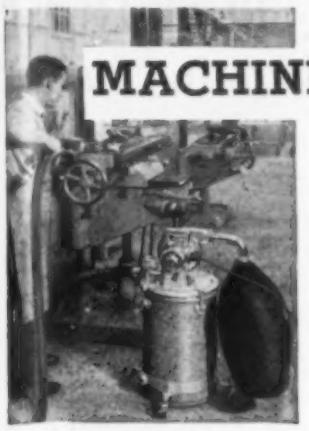
Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago. Branches and service stations throughout the United States and Canada.

FAIRBANKS-MORSE

DIESEL ENGINES · PUMPS · MOTORS · GENERATORS · SCALES · WATER SYSTEMS · FARM EQUIPMENT · STOKERS · AIR CONDITIONERS · RAILROAD EQUIPMENT

Scales

▲ Mention Item NED-2575 when writing ▲



TO KEEP MACHINES RUNNING KEEP 'EM CLEAN with IDEAL "TANK-TYPE" ELECTRIC CLEANER

Prevents Shutdowns, Improves Performance, Lengthens Life of machines and motors. The Tank traps the destructive heavy dirt, metal chips and filings. Only fine dust goes into the bag.

Super-powered; full 1 h.p. Universal Motor. Air velocity, 24,200 ft. per minute (equal to 275 m.p.h. blast) but under low pressure; will not harm delicate machinery. All purpose, heavy-duty industrial cleaner.

THIS UNIT DETACHABLE FROM IDEAL "TANK-TYPE" ELECTRIC CLEANER IS ALSO AVAILABLE AS A SEPARATE UNIT. MAKES POWERFUL "HAND-PORTABLE" CLEANER.

WRITE FOR DESCRIPTIVE LITERATURE

IDEAL COMMUTATOR DRESSER COMPANY
1032 Park Avenue Sycamore, Illinois
Sales offices in all principal cities
In Canada: Irving Smith Ltd., Montreal, Quebec

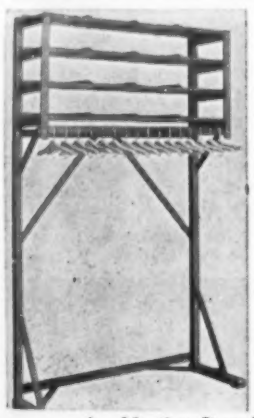
▲ Mention Item NED-2576 when writing ▲

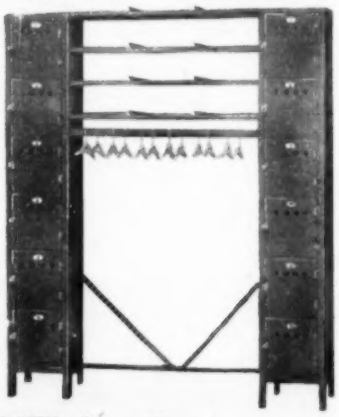
ACCOMMODATE 12 IN SPACE OF 5 ORDINARY LOCKERS

The new hardboard and plywood Peterson Industrial Lockers come in both single and double (back to back) units that accommodate either 12 or 24 persons in every 5 running feet. Double locker room capacity and save valuable floor space for productive use. Provide each employee with a spaced coat hanger, an individual ventilated hat shelf and a 12 in. x 12 in. lock box for lunch, micrometers, drawing instruments or personal effects. Keep wraps "in press," dry and sanitary—exposed to air and light. No crumpled hats or soggy lunches in stormy weather. Prompt delivery.

Write for Circular

VOGEL-PETERSON COMPANY
"The Checkroom People"
1803 N. Wolcott Ave. Chicago, U. S. A.





▲ Mention Item NED-2577 when writing ▲

THERMONIC

The Most Efficient and Economical System for LOCALIZED SURFACE HARDENING

Heat, localized exactly where required and automatically controlled as to temperature, produces parts uniform in structure and hardness without decarburization or affecting untreated portions. High-speed low-cost mass production is readily achieved, even with unskilled workers. Heating time for the gear tooth shown above (part of an 18 ft. dia. gear) was about 70 seconds...current cost approximately 1½c per tooth. Temperature was maintained at 1500° F., using two 20 KW generators.

We publish, monthly, a file-size series of Data Sheets on Induction Heating. Copies are yours upon request.

LARGEST PRODUCERS OF ELECTRONIC HEAT TREATING EQUIPMENT FOR BRAZING • MELTING ANNEALING • FORGING SURFACE HARDENING

INDUCTION HEATING CORPORATION • 389 LAFAYETTE ST., N.Y.

▲ Mention Item NED-2578 when writing ▲

FLAME WELDER'S GLASSES

Permitting flame welders to look through yellowish cloud of "flux-flare" to see rod and molten area more clearly, eye protection glass known as Didymium - Noviweld is claimed to increase worker's efficiency in every phase of welding operation, particularly flame welding of aluminum and steel. In addition to absorbing that particular portion of visible spectrum where "flux-flare" normally obstructs clear vision, lenses protect eyes by absorbing invisible ultra-violet and infra-red rays generated during welding.

Lenses meet Bureau of Standards specifications for glare control, it is claimed. Three shades are available, numbers 4, 5 and 6 corresponding to shade numbers of standard A0 Noviweld lenses. Stocks are available for immediate delivery. Made by **American Optical Co.**, 1492 Mechanic St., Southbridge, Mass.

▲ Mention Item NED-2579 when writing ▲

PORTABLE PRINTER

Black and white prints, as well as blue prints can be produced readily on this Spee-Dee printer. Exposure time is frequently as little as 20 seconds and developing time only 10

seconds. Completely portable and compact, this table model can be plugged into any standard electric outlet. Two sizes are available for prints up to 12 by 18 inches and 18 by 24 inches. Oversize printing surface eliminates need for crowding or overlapping prints.

Tracings, drawings, letters, invoices or any written or printed matter can be duplicated. Timer, optional at $10 extra, permits accurate exposure of prints. Smaller unit lists for $35 and larger model for $55. Made by **Peck & Harvey**, 4325 Addison St., Chicago, Ill.

▲ Mention Item NED-2580 when writing ▲

SCREW STEM GATE HOIST

Applicable to screw stem gates such as are used on canals, reservoirs and other water controlling projects, this line of floor stand hoists is of compact, strong and easy to operate design. Features include hardened gears, efficient seals and anti-friction bearings. Handles are removable.

Heavy duty lifting is accomplished with minimum of crank effort. Selective two speed gear ratios are used. Gates may be stopped and held at any stage of opening. Made by **Rodney Hunt Machine Co.**, 73 Maple St., Orange, Mass.

▲ Mention Item NED-2581 when writing ▲

Having Trouble with Excess

HEAT? MOISTURE? DUST? FUMES?

Whatever your particular problem may be, hundreds like it have been solved successfully by Propellair Fans—recommended and installed by Propellair's experienced ventilating specialists. This combination of equipment and application "know how" is ready to help you, *efficiently* and *economically*.

There's a Propellair Fan for every specific need, whether it's expelling heat, moisture, dust or fumes—or circulating cool air or heat correctly. Each is of highly efficient Axial, Airfoil design developed by Propellair engineers and proved in service. And Propellair ventilating specialists know precisely *where* and *how* each should be used.

For help on your war-production problem, write today, stating whether it involves heat, moisture, dust or fumes.

AXIAL, AIRFOIL PROPELLERS deliver maximum air with minimum horsepower. Air moves evenly over all parts of blades—the *whole* blade works, not just the tips!

CURVED ENTRANCE RING also utilizes Airfoil principle—enables Propellair Fans to deliver utmost air per horsepower.

ASK FOR PROPELLAIR CATALOG NO. 10-B.

"MOVING AIR IS OUR BUSINESS"

PROPELLAIR INC. SPRINGFIELD · OHIO

▲ Mention Item NED-2582 when writing ▲

Looking Ahead?

Not much man-power available for that, now. But it courts disaster to ignore the fact that production for *America* will begin again.

Re-designing?

Will shaped wire—widths to ⅛", end section areas to .250 sq. inch—help your production? Check with PAGE. Possibly you will find exactly what you need in wire of standard analysis and shape—remembering that shapes include oval, half-round, square, triangle, keystone, flat, hexagon, octagon, etc.

Today practically all of capacity goes to war production and to the armed forces. But we will gladly work with you on "futures."

PAGE SHAPED WIRE
PAGE STEEL AND WIRE DIVISION
Monessen, Pa., Atlanta, Chicago, New York
Pittsburgh, San Francisco, Portland
AMERICAN CHAIN & CABLE COMPANY, Inc.
BRIDGEPORT, CONNECTICUT

▲ Mention Item NED-2583 when writing ▲

STANLEY "MIGHTY MIDGET" UNISHEAR

Easier to handle than a pair of snips . . . speeds as fast as you feed, saves hours over hand cutting. Follows any line, cuts accurately . . . curves down to 1" radius, inside cuts from 1" hole. No waste or distortion of metal.

The "Mighty Midget" is 100% safe, is quickly mastered by new workers . . . men or women. Capacity up to 18 ga. hot rolled steel, softer metals and materials in proportion. Plugs in to any service outlet.

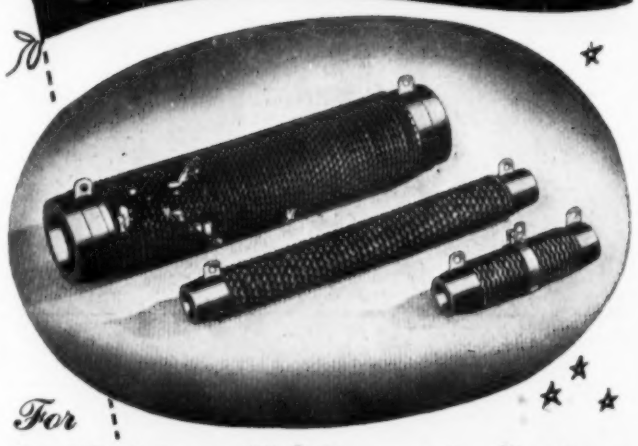
Ask your Stanley distributor for a demonstration, or write for literature. Stanley Electric Tool Division, The Stanley Works, 104 Elm St., New Britain, Connecticut.

1843 STANLEY 1943

STANLEY UNISHEARS
THE ELECTRICALLY DRIVEN HAND SHEARS

▲ Mention Item NED-2584 when writing ▲

OHMITE "CORRIB" RESISTORS



For

Low Resistance High Current Applications

Widely used for motor starting circuits and similar intermittent-duty purposes, and for many continuous-duty applications. Exposed resistance winding of corrugated ribbon space-wound edgewise on ceramic tube, and vitreous enameled. Wide range of sizes, in fixed and adjustable types. Write on company letterhead for Catalog and Engineering Manual No. 40.

BE RIGHT WITH OHMITE RHEOSTATS • RESISTORS • TAP SWITCHES

OHMITE MANUFACTURING COMPANY
4842 Flournoy Street, Chicago, U. S. A.

▲ Mention Item NED-2585 when writing ▲

TO MEASURE...

the thickness of nonmagnetic materials on steel or iron—

The G-E film-thickness gage

THIS device measures, quickly and accurately, bearing linings, such as copper, silver, and lead; plated parts; paints, varnishes, lacquers, glass, paper, and mica—*when these materials are on a steel or iron backing.*

Call the nearest G-E office or write for Bulletin GEA-3575.

If you have ANY kind of measurement problem, call or write our nearest office for information on how the G-E Special Products Section can help you meet your individual requirements. *General Electric, Schenectady, N. Y.*

800-5-8851

GENERAL ELECTRIC

▲ Mention Item NED-2587 when writing ▲

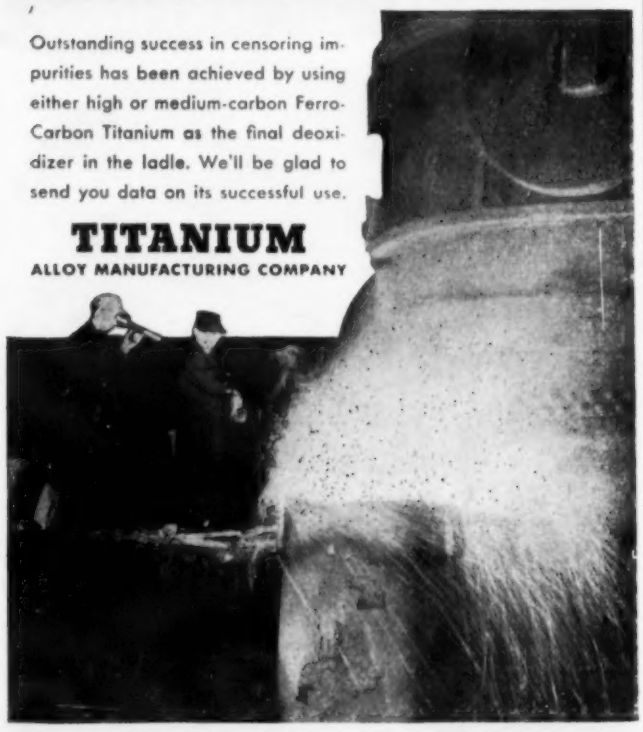
Downs Safety Plate Grips

▲ Mention Item NED-2588 when writing ▲

CENSORSHIP IN STEEL

Outstanding success in censoring impurities has been achieved by using either high or medium-carbon Ferro-Carbon Titanium as the final deoxidizer in the ladle. We'll be glad to send you data on its successful use.

TITANIUM
ALLOY MANUFACTURING COMPANY



GENERAL OFFICES AND WORKS: NIAGARA FALLS, N. Y., U. S. A.
EXECUTIVE OFFICES: 111 BROADWAY, NEW YORK CITY

▲ Mention Item NED-2589 when writing ▲

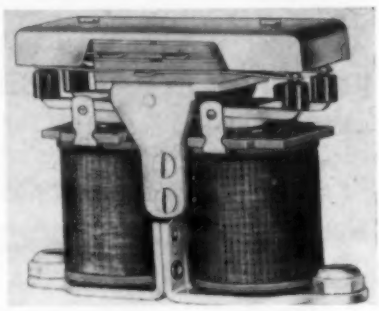
ACETYLENE GENERATOR

Production of acetylene gas for welding, cutting, soldering, brazing or other operations is accomplished economically with this portable high pressure acetylene generator. Two sizes are available, with capacities of 90 and 200 cubic feet.

Automatic control is obtained through displacement method of operation. Gas is generated as required. Standard lump carbide is used. Shell is tested to withstand pressure of 50 pounds. Made by **Adler Manufacturing Co.,** 1442 N. Fourth St., Milwaukee, Wis.

▲ Mention Item NED-2590 when writing ▲

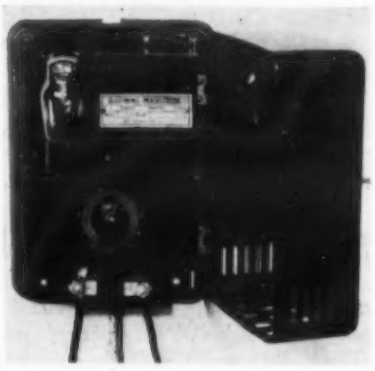
ELECTRIC RELAY



Of double action interlocking control type, this balanced armature relay can be engineered to fit into designs where lightness in weight and compact size are essential. Device is ruggedly constructed to withstand constant vibration and sudden shocks encountered in mobile equipment. Relay is available in various contact arrangements or with Micro Switches in place of spring pile-ups. Capacities range up to 5 amperes on 110-volt alternating current. Coil capacity is 10,000 ohms each. Contact forms or assemblies may be up to 12 springs on each side. Size is 2¾ x 1 15/16 x ⅞ inches. Made by **Cook Electric Co.,** 2700 Southport Ave., Chicago, Ill.

▲ Mention Item NED-2591 when writing ▲

WELDER TIMING CONTROL



Affording same precision of timing for small welders as is generally obtained on larger machines, series A welder timing controls are designed for use with ½ and 1-kilovolt-ampere welders. Single adjustment controls timing exactly to needs of work at hand and assures uniform performance, resulting in clean welds capable of continuous reproduction. Control operates upon electronic principle and permits application of current for any predetermined period of time, ranging from ½ to 60 cycles. Made by **Electronic Products Co.,** 19 N. E. First St., Geneva, Ill.

▲ Mention Item NED-2592 when writing ▲

SUPERIOR PRODUCTS IN TUBING...

SUPERIOR — FOR FINE SMALL TUBING

SEAMLESS
Carbon Steels
Alloy Steels & Tool Steels
Stainless Steels
Aluminum
Nickel
"Monel"
"Inconel"

SUPERIOR IS THE LARGEST AMERICAN PRODUCER OF PURE NICKEL CATHODE SLEEVES IN SEAMLESS & LOCKSEAM**

WELDRAWN
Carbon Steels
Stainless Steels

BRAWN*
"Monel"
"Inconel"

*Registered U. S. Trademark
**U. S. Patented

TUBING FROM 5/8" OD DOWN

Our undivided attention has been given the entire field of metals and alloys which can be, or should be, drawn to small sizes. As each new analysis is added to the list, the peculiarities in handling are solved, so that there are no metallurgical problems when production displaces experimental work.

For Information on Superior Fine Small Tubing Write

SUPERIOR TUBE CO. 1900 Germantown Ave. NORRISTOWN, PA.

"FOR FINE SMALL TUBING"

▲ Mention Item NED-2593 when writing ▲

Wheeler "II-G" DUST-TIGHT Fluorescent Lighting Units

Underwriter-Approved for "Class II-G" Hazardous and Other Exacting Special Locations

Wheeler DUST-TIGHT Fluorescent Fixtures meet Underwriters' requirements for Class II-G, Class III and Class IV Hazardous Locations. Also advantageous in many other locations where lamps, sockets and reflecting surfaces must be protected from non-combustible dusts and vapors.

All units supplied complete with latest type high-power-factor ballasts employing separate renewable starter switches. Hinged Dustight Glass covers give easy access to lamps and starter switches. Available with ¼" Water-White Plate Glass, ¼" Tempered Clear Safety Plate Glass, or 5/16" Double-Thick Plain Clear Glass. Units furnished with suitable mounting flanges for conduit suspension.

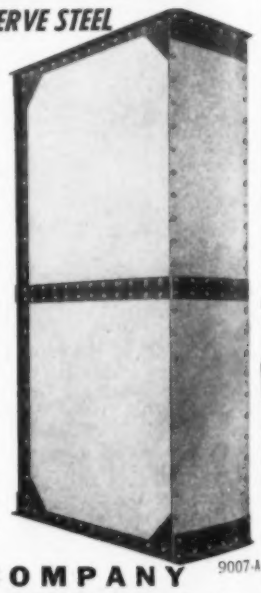
Write for complete information. **Wheeler Reflector Co., 275 Congress St., Boston, Mass.** . . . New York . . . Cleveland. Representatives in principal cities.

Wheeler REFLECTOR COMPANY
Lighting Equipment Specialists Since 1881

▲ Mention Item NED-2594 when writing ▲

Now COMBINATION STEEL AND COMPOSITION BUCKET ELEVATOR CASINGS

TO CONSERVE STEEL



LINK-BELT Victory Bucket Elevators consist of casings and head sections made of non-metallic composition sides and end plates with angle iron supporting corners and section connections. The variety of composition sheets procurable permits selection with consideration for the material being handled, resistance to weather, temperature, dust proofing and abrasion. The composition materials may be replaced with steel when available. Tests have been made to determine the effect of loads and stresses as normally encountered under operating conditions, with satisfactory results.

Link-Belt engineers have a thorough knowledge of limitation orders and are at your service in this vital war effort.

9007-A

LINK-BELT COMPANY
Chicago, Philadelphia, Indianapolis, Atlanta, Dallas, San Francisco, Toronto.
Offices, warehouses and distributors in principal cities.

LINK-BELT

▲ Mention Item NED-2595 when writing ▲

▲ Mention Item NED-2596 when writing ▲

"Give us the Weapons of War and we'll WIN!"

The industries of mighty America answer the cry. Back on the production front, **PRODUCTIMETERS** are in service on machines producing war materials... giving accurate count of production, providing exact figures for control. They're on guard to eliminate costly over-runs or under-runs . . . to conserve vital materials . . . save valuable man-hours.

There's a model and type for every industry. If you have a counting problem, write us. Our recommendations are backed by 64 years' experience in the manufacture of counting and measuring devices.

DURANT MFG. COMPANY
1922 N. Buffum St., Milwaukee, Wis.
178-A Eddy St., Providence, R.I.

Bulletin No. 100 sent upon request!

U. S. ARMY SIGNAL CORPS thru Underwood & Underwood

▲ Mention Item NED-2597 when writing ▲

WAGNER MOTORS can help you in your "All-Out" War Effort!

It takes plenty of dependable motors, operating at top efficiency to maintain the high-speed production so necessary in our "all-out" war effort.

Wagner fully realizes this and is working day and night turning out more motors now than ever before, and is supplying these reliable motors wherever they are needed.

If you need motors to carry on your war production, consult Wagner. Twenty-five sales and service branches, located in principal cities, are ready to help you in selecting the RIGHT Wagner motor to do the job.

Get the FACTS

Write for Bulletins MU-176, MU-182, and MU-183. They contain valuable information that should be in the hands of every motor user.

M43-5A

Wagner Electric Corporation
6477 Plymouth Avenue, Saint Louis, Mo., U.S.A.
MOTORS · TRANSFORMERS · FANS · BRAKES

▲ Mention Item NED-2598 when writing ▲

Collect DUST at its source with PENFLEX ALL-METAL HOSE

PROTECT MEN, products and machines from abrasives, metal dust and other harmful material with PENFLEX General Utility Flexible All-Metal Hose.

PENFLEX bends easily, follows any desired path. Material flows through smooth, easy bends . . . no sharp turns . . . no clogging.

Light in weight, PENFLEX adapts itself to movable parts, bilge ventilation, fume exhaust and conveying of dry granular materials.

For detailed information, send for Bulletin 60. Available up to 18 inches I. D., packed or unpacked.

Photo Courtesy of FIDELITY Machine Company

PENNSYLVANIA FLEXIBLE METALLIC TUBING CO.
7232 Powers Lane, Philadelphia, Pa.
ESTABLISHED 1902

▲ Mention Item NED-2599 when writing ▲

SMALL TILTING FORK TRUCK

Adaptable for shipping, receiving, warehouse and general freight handling, this model MK30-2 center control, telescopic lift, tilting fork truck is equally useful for moving, stacking, tiering and storing operations in all types of industries. Of compact size, unit has capacity up to 2000 pounds. Measuring only 98 inches from 30-inch fork tip to stern, truck will navigate narrow aisles, around sharp corners and in close quarters.

Single fork lift is 71½ inches and telescopic lift reaches 129 inches. Unit has four speeds forward and reverse. all controls are readily accessible, hoisting and tilting controls being fitted with mechanical limit safety stops. Machine is powered either with 24 to 30 volt battery or with P30 Continental engine driven Ready Power unit. Made by **The Yale & Towne Mfg. Co.**, Philadelphia, Div., 4537 Tacony St., Philadelphia, Pa.

▲ Mention Item NED-2600 when writing ▲

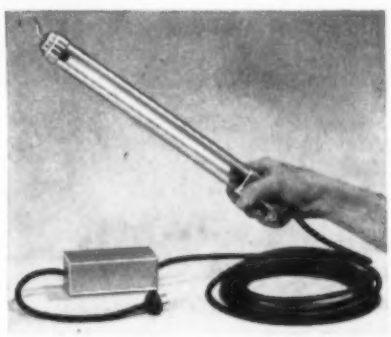
FLOOR SEALING MATERIAL

Usable on concrete, wood or cork tile floors, Flash-Seal floor preserver offers protection for floor surfaces against wear. Material penetrates wood, sealing surface against entrance of dirt and grime. It maintains original color, providing lustrous finish.

It is easily applied and requires minimum of maintenance. Concrete is sealed against dusting and absorption of dirt. Coating also prevents deterioration caused by oils and other materials injurious to wood or concrete. Made by **Flash-Stone Co.**, Dept. RM, 1936 N. Twelfth St., Philadelphia, Pa.

▲ Mention Item NED-2601 when writing ▲

INSPECTION LIGHT



Sturdy and simple in construction, portable fluorescent light is designed to meet requirements of inspection in inaccessible places in aircraft, ships, war tanks and many other types of industrial applications, including automobiles, boilers and heavy machinery. Fluorescent 8-watt lamp is enclosed in heavy, clear Lucite protecting tube ⅛ inch thick. Combination metal light baffle and support shields light from inspector's eyes. Lamp is equipped with convenient hook for stationary use, standard cord plug and ballast box with 20 feet of cord. Light can be easily taken apart for lamp replacement by removing two screws. Made by **Commercial Reflector & Mfg. Co.**, Dept. AK, 3109 Maple Ave., Los Angeles, Calif.

▲ Mention Item NED-2602 when writing ▲

SAFE

DAYTON SAFETY LADDERS have every advantage

No extra man needed to steady — Roomy platform for men and tools—Great strength, yet lightweight. Guard rails on platform. Automatic locking. Folds compactly.

Airplane spruce used throughout — Steel braces—Safety shoes. In sizes 3′ to 16′ in height — Elevating platform adds height.

Write today for Free Catalog—Prices.

DAYTON SAFETY LADDER Co.
121-22 W. 3rd ST. CINCINNATI, OHIO

▲ Mention Item NED-2603 when writing ▲

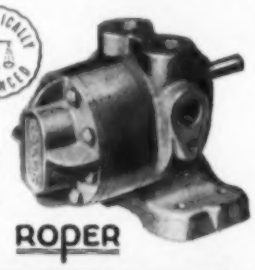
"You Can Rely on Roper"

16 Standard Sizes · 3 Standard Series · 21 Standard Drives and Mountings

THOUSANDS OF COMBINATIONS... SELECT A MODEL THAT'S PRACTICALLY *Custom Built to fit Your Job!*

"PUMP as you never pumped before" is the order for every Roper Pump installed in America's war plants. And Ropers are pumping like sons of guns . . . driving an unfailing flow of oil into the lubricating and hydraulic systems that help convert metals into munitions and engines of war.

And there are good reasons why Ropers are selected to do the tough war time jobs . . . only two moving parts . . . hydraulically balanced . . . easier to install . . . easier to service . . . longer lasting because of minimum wear . . . quick adaptability to any job because of models with nearly every capacity, pressure, speed, drive, mounting and piping arrangement.

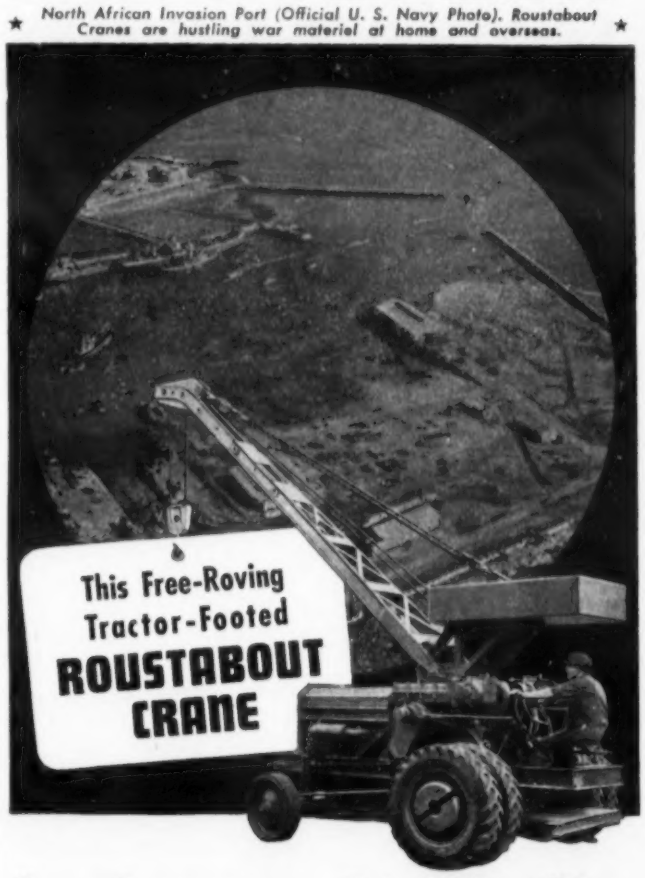


Write For Catalog No. 949

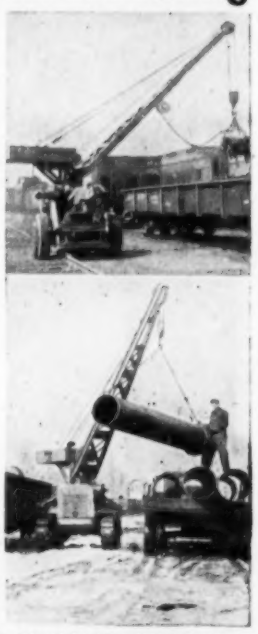
GEO. D. ROPER CORP., ROCKFORD, ILL.

▲ Mention Item NED-2604 when writing ▲

★ *North African Invasion Port (Official U. S. Navy Photo). Roustabout Cranes are hustling war material at home and overseas.* ★



Smashes your Load-Handling Bottlenecks . . .



● *Where* you want it *when* you want it, this speedy loadster hustles bulky odd-shaped stuff in and out, up and over—gives you instant load-handling action that prevents costly delays, saves manpower. In hundreds of depots, airports, docks and defense plants, the ever-ready Roustabout Crane moves, stacks, loads anything to 5 tons—without a whimper. Powerfully built for years of overwork—boom rides a heavy-duty ball-bearing turntable, enclosed gears run efficiently in oil. Wheel or crawler mounted, easy and inexpensive to operate. For fast action now, for cost-saving later, write for bulletin showing Roustabouts at work.

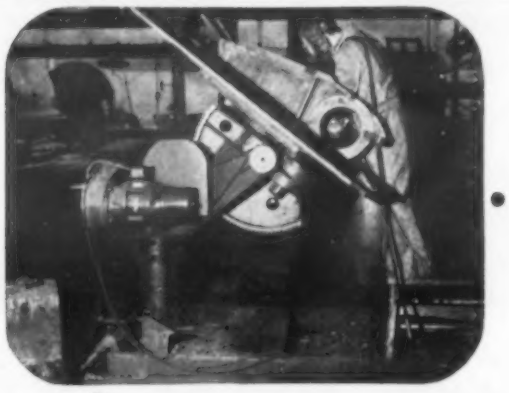
THE HUGHES-KEENAN COMPANY
565 Newman Street MANSFIELD, OHIO

Keep 'em Flying · Buy U.S. War Bonds

ROUSTABOUT CRANES By Hughes-Keenan

Load-Handling Specialists Since 1904

▲ Mention Item NED-2605 when writing ▲



C-F POSITIONERS

Speed Production and Job Welding

C-F Positioners make welding a faster and more economical operation—save time, save man-hours. The welder himself turns and tilts and positions even the clumsiest and heaviest weldments with a push button control—without cranes, crane crews, hoist, jacks or "flopping" space. All sides can be welded down-hand—all welds can be made faster with heavier rods; made stronger, smoother and flawless.

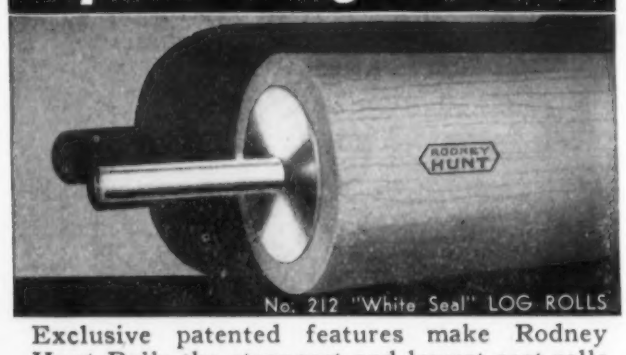
C-F Positioners come in sizes and types for every welding need—range from small hand operated units for light job work to giant positioners that swing great weldments weighing 30,000 lbs. All have platforms that rotate the full 360° and tilt to 135° beyond horizontal. *All are adjustable for height and are pedestal mounted to give greatest floor clearance.*

Write for Bulletin WP 22.

CULLEN-FRIESTEDT CO.,
1304 S. KILBOURN AVE. CHICAGO, ILLINOIS

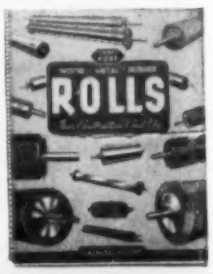
▲ Mention Item NED-2606 when writing ▲

Super-Strong ROLLS



Exclusive patented features make Rodney Hunt Rolls the strongest and lowest cost rolls ever built. Made of wood, metal, rubber, or plastic in a wide range of lengths and diameters, Rodney Hunt Rolls have ended roll troubles and cut roll costs in hundreds of plants.

WRITE FOR CATALOG



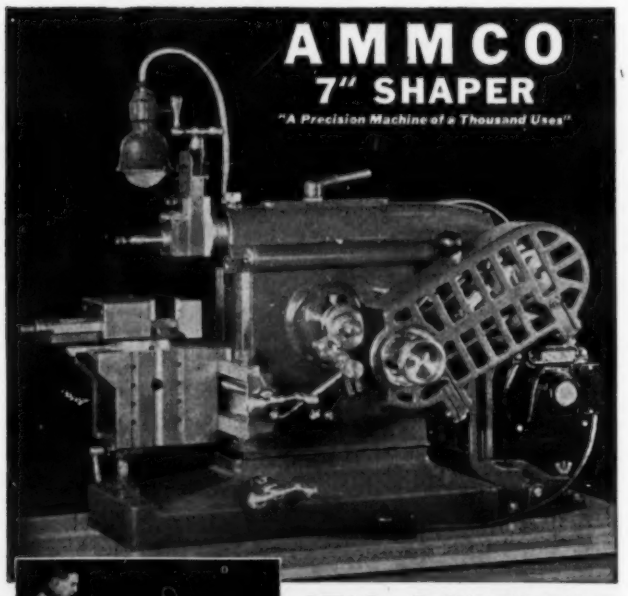
Our new Roll Catalog No. 740 illustrates and describes a wide range of wood, metal and rubber rolls. Also wood and stainless steel reels, showing many patented features.

RODNEY HUNT MACHINE COMPANY
73 MAPLE STREET ORANGE, MASS., U. S. A.

▲ Mention Item NED-2607 when writing ▲

AMMCO 7" SHAPER

"A Precision Machine of a Thousand Uses"



IT'S PORTABLE

-- Saves Steps and Time --

Don't tie up a big shaper when so many jobs can be done just as accurately and much quicker and more economically on the AMMCO 7" PRECISION SHAPER.

Available for stationary installation or mounted on portable cabinet easily rolled to the mechanic's workbench . . . Write today for specifications and prices.

AUTOMOTIVE MAINTENANCE MACHINERY CO.
2110 Commonwealth Avenue North Chicago, Ill.

▲ Mention Item NED-2608 when writing ▲

TEMPERATURE CONTROL

Accurate and effective cooling is obtained by means of automatic temperature control on Niagara Aero heat exchanger for cooling industrial liquids. Method is based on controlling amount of outside air passed through evaporative cooling chamber rather than altering flow of liquid being cooled. Cooling effect is directly proportioned to load changes. Water savings are increased and when heat exchanger is used to cool oils or compounds, there is no settling of solids, restricted flow or clogging of tubes to interrupt operations.

Apparatus comprises recirculating air duct, to which outside air is admitted by dampers controlled by thermostat in liquid line where it is always in contact with full flow of liquid being cooled. Only minimum amount of outside air is admitted, keeping spray water temperature above freezing to prevent damage to equipment in cold weather. Made by **Niagara Blower Co., Dept. N53, 6 E. Forty-fifth St., New York City.**

▲ Mention Item NED-2609 when writing ▲

SURFACE-ANGLE PLATE

Accurate inspection is facilitated through use of this combination master surface-angle plate. It is made of close grained high strength Meehanite and rigidity is afforded by heavy ribs. Construction eliminates need for clamping angle plate to surface plate.

Work may be affixed to vertical plate and there is ample room to move height gage or other measuring instruments on surface plate. Sine bar may be used by inserting stud through elongated slot and tightening from the rear.

Back plate is heavily ribbed and 90 degree angle is accurate. Hand scraping permits tolerances within 0.0001-inch. Surface plate measures 24 by 36 inches and angle plate, 18 by 19 inches. Distributed by **Thomas Wilberton & Co.,** Cedar Grove, N. J.

▲ Mention Item NED-2610 when writing ▲

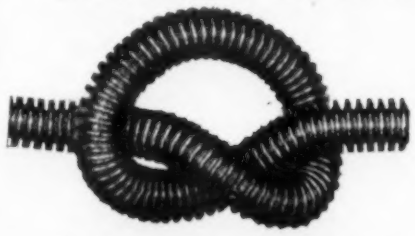
SEAMLESS PLASTIC TUBING

Available in all sizes up to 2-inch outside diameter, Tulox TT seamless plastic tubing will shortly be made in up to 2½-inch outside diameter. It is extruded from Tennessee Eastman cellulose acetate buytyrate and is available from warehouse stocks throughout country through Crane Co. and Julius Blum & Co. Made by **Extruded Plastics, Inc.,** Norwalk, Conn.

▲ Mention Item NED-2611 when writing ▲

You Can Depend on ECLIPSE

to give long, satisfactory service on those difficult installations involving sharp radius bends and continuous vibration.



SEAMLESS, All-Metal Construction Extreme FLEXIBILITY. MINIMUM WEIGHT

For Steam, Air, Oil, Chemicals, Gases, Acids, Vacuum, Etc.

Write for Information. Please Describe Installation Details

ECLIPSE AVIATION
SEAMLESS FLEXIBLE METAL HOSE

Manufactured and Sold by

THE INVISIBLE CREW — Precision Equipment by Bendix AVIATION CORPORATION

Philadelphia Division:
4710 WISSAHICKON AVENUE, PHILADELPHIA, PA., U. S. A.

▲ Mention Item NED-2612 when writing ▲

NO EXPERIENCE NEEDED

4-WINGED DRIVER AND PHILLIPS RECESSED-HEAD SCREW CAN'T DRIVE ANY WAY BUT STRAIGHT

Operator-Skill is built into
AMERICAN PHILLIPS SCREWS

Unskilled workers quickly gain confidence from the secure fit of the 4-winged Phillips driver in the tapered recess of the screw head . . . making easy, fast, straightline driving practically automatic right from the start. Screw and driver become one solid unit . . . can't wobble . . . can't twist apart. Screw is turned up tight and plumb-level, making a clean, good-looking fastening that any worker would be proud of, and any inspector would pass. So change now to American Phillips Screws and get faster assemblies at lower cost.

AMERICAN SCREW CO.
PROVIDENCE, RHODE ISLAND
Chicago: 589 E. Illinois Street
Detroit: 5-267 Gen. Motors Bldg.

▲ Mention Item NED-2613 when writing ▲

Quick Answers

to your questions about WELDED STAINLESS TUBING

Whether you are interested in Welded Stainless Tubing for making aircraft parts, or for transporting fluids in processing, this Carpenter Working Data Book can provide real help.

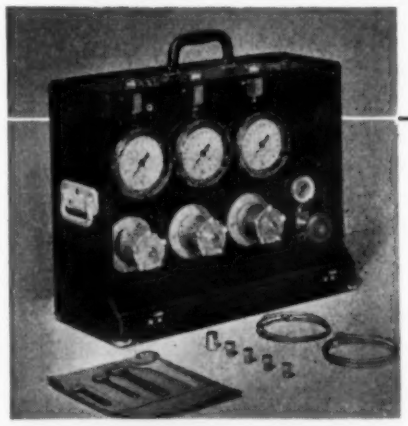
In it you will find working instructions to help you determine the tolerances, gauges, analyses, weights and heat and corrosion resisting properties of the Welded Stainless Tubing to meet your requirements. Right through to the section on designing for this tubing, the Carpenter Data Book has been written to do a shirtsleeves job of helping you get the most from every length of Welded Stainless Tubing you use.

If you do not already have a copy—a note on your company letterhead will start this 16-page Working Data Book on its way to your desk.

THE CARPENTER STEEL COMPANY
Welded Alloy Tube Division, Kenilworth, N. J.

▲ Mention Item NED-2614 when writing ▲

The GROVE Pneumatic Gauge COMPARATOR



The Portable Method of Checking All Types Of Pressure Gauges

- Compact, portable and fully self-contained.
- Built-in high capacity rechargeable air cylinder.
- Precision laboratory test gauges accurate to within ¼ of 1% full scale.
- Completely equipped with tubing, connections and accessories.

Figure the amount of time, trouble and money you save when you check your pressure gauges "in-place" without removing them from their panels or mountings; without disturbing existing line connections. The portable Grove Pneumatic Gauge Comparator gives you this fast accurate means of accurately checking any service gauge in service. Write today for Bulletin 300.

GROVE REGULATOR COMPANY
6533 Green Street, Emeryville, California
Branch Offices:
5644 Navigation Blvd., Houston, Texas—30 Rockefeller Plaza, New York City

GROVE Pneumatic Gauge COMPARATOR

▲ Mention Item NED-2615 when writing ▲

COMMANDOS of the Assembly Line...

Speed Nuts

they're tough!

SPEED NUTS are truly the commandos of the assembly lines. They are tough—and fast in action. They are now being rushed into aircraft factories where they are vitally needed on the assembly lines.

Spring Steel SPEED NUTS are approved by the U. S. Army Air Forces and the Bureau of Aeronautics for most all nonstructural attachments. Conversion to the use of Speed Nuts on all approved applications releases critical bar stock steel for other important uses.

Our Engineering Dept. will be glad to assist you in determining the proper approved locations where SPEED NUTS may be used. Request for information or assistance will receive immediate attention.

TINNERMAN PRODUCTS INC. 2044 FULTON ROAD CLEVELAND, OHIO

Speed Nuts THE FASTEST THING IN FASTENINGS! Speed Clips

▲ Mention Item NED-2616 when writing ▲

Automatic PURGING for Refrigerating Systems

ARMSTRONG PURGERS

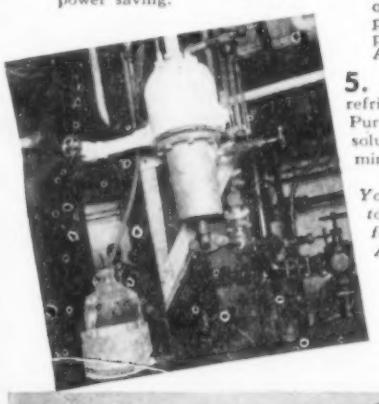
1. Reduce Head Pressures—elimination of non-condensibles may cut your head pressure from 5 to 45 lbs. or more.

2. Save Power—Every 4 lb. head pressure reduction means approximately 2% power saving.

3. Increase Compressor Capacity—every 4 lb. head pressure reduction also means approximately 1% increase in compressor capacity.

4. Save Time and Labor—time otherwise spent by busy engineers in manual purging or attention to inefficient purgers can be spent more profitably when automatic Armstrongs are used.

5. Save Refrigerant—loss of refrigerant with Armstrong Purgers is reduced to an absolute and inappreciable minimum.



You need these advantages today more than ever. Write for descriptive literature on Armstrong Purgers now.

ARMSTRONG MACHINE WORKS
819 Maple Street
Three Rivers, Michigan

ARMSTRONG Automatic non-condensible gas PURGER

▲ Mention Item NED-2617 when writing ▲

...and Now A SURFACE PLATE FOR EXTREMELY HEAVY LOADS

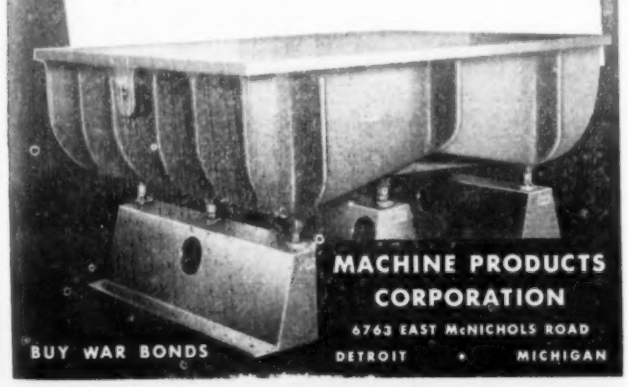
Originally designed and built for a large aircraft motor manufacturer—now available to you.

Surface measures 4 x 6 ft.—depth 20 inches—weighs over 2 tons—the heaviest plate, of these surface dimensions, ever made.

Made of Meehanite—recognized for its uniform strength and fine grain structure—meets exacting requirements throughout entire surface.

Mounted on specially designed pedestal type bases—provided with 3 adjustable bearings, supplemented by additional adjusting screws for leveling purposes.

Send for folder showing other sizes and prices.



MACHINE PRODUCTS CORPORATION
6763 EAST McNICHOLS ROAD
DETROIT • MICHIGAN

BUY WAR BONDS

▲ Mention Item NED-2618 when writing ▲

NEW Applications

WATCHMAN'S HUT

Combining strength and utility with neat appearance, watchman's hut is made of prefabricated Lindsay structure. All parts are accurately die-formed by mass production methods. Building can be assembled with simple wrenches in few hours. No welding or riveting is required.

Hut gives ample protection against rain, sleet or snow. It is provided with full sized door and hinged window which may be opened or closed with ease. Panel sheets, being of light gage steel, make building which is light in weight, portable if necessary, or it can be dissembled in relatively short time to be reassembled at another location without waste of materials. Structure made by Lindsay and Lindsay, 224 W. Adams St., Chicago, Ill.

▲ Mention Item NED-2619 when writing ▲

INDUCTION HEATING

Aircraft propeller blade shank can be heated for two important forming operations by means of Tocco process of electrical induction in approximately one fifth time formerly required. Shank of hollow steel blade is first heated preparatory to swaging operation, in which shank is rounded to perfect circumference. After two welding processes, thorough inspection and lathe machining operation, it is heated for second time before upsetting operation, which increases wall thickness of shank and decreases length of shank area.

Prior to adoption of induction heating, blade was heated by means of gas furnaces. Fifteen minutes were required for heating to desired temperature. Color of heated work was only way in which operator could judge whether correct temperature had been reached.

Induction heating process is both quick and accurate. A further advantage is that heating machine can be located adjacent to swaging and upsetting equipment. Process reduces hazards of scaling to minimum, it is claimed. Process was originated by The Ohio Crankshaft Co., Dept. 3, 3800 Harvard Ave., Cleveland, O.

▲ Mention Item NED-2620 when writing ▲

BENJAMIN RLM

Where MORE LIGHT is required for War Production Work USE BENJAMIN Type "V" Fluorescent Units

WRITE today FOR Free CATALOG BULLETINS

Benjamin RLM Type "V" Fluorescent Lighting units are the answer to the problem of obtaining extra light for inspection operations and other manufacturing operations requiring the discrimination of fine detail.

Use of these non-metallic reflector units insures a high degree of lighting efficiency and adequate eye shielding. The non-metallic reflectors are finished in a very durable baked synthetic enamel and have a reflection factor of 85% or more. Embodied in these units are many Benjamin features which make for ease of wiring, installation and maintenance.

Type "V" units are warranted to comply with all recognized electrical, mechanical and performance standards and are available for either 48" or 60" fluorescent lamps in both individual open end units or in continuous channel. For catalog bulletins, write Product Information Department, W, Benjamin Electric Mfg. Co., Des Plaines, Illinois.

BENJAMIN TRADE MARK
TYPE "V" FLUORESCENT LIGHTING EQUIPMENT
DISTRIBUTED EXCLUSIVELY THROUGH ELECTRICAL WHOLESALERS

▲ Mention Item NED-2621 when writing ▲

DRILL HOLES UP TO 1¼" DIAMETER ANY DEPTH in Masonry and Concrete

★By Welding Extra Shank Here→

PAINE "SUDDEN DEPTH" DRILL BITS

● This new feature increases the flexibility and use of this Carboloy Tipped drill bit that makes anchor holes 50 to 75% faster and lasts surprisingly longer. In addition, it is quiet in operation. Can be used in any rotary drill (slow speed). Available in sizes from 3/16" through 1-1/8" diameter (graduated in 1/16" sizes.) All have maximum 1/2" shank.

Ask your Mill Supplier and Write for Catalog.

THE PAINE CO.
2977 CARROLL AVE., CHICAGO, ILLINOIS

● *Offices in Principal Cities* ●

★ PAINE ★ FASTENING and HANGING DEVICES

▲ Mention Item NED-2622 when writing ▲

JOHNSON BRONZE SLEEVE TYPE BEARINGS

How to make Good Motors BETTER

It makes little difference whether you are buying, building or repairing motors, JOHNSON BRONZE can help you. In new equipment we can help you design the *type* of bearing that will guarantee the most efficient operation. For replacements, we offer you the largest range of sizes and types in bearings available. In order to get the most from your motors—consult with JOHNSON BRONZE. Let us help you make good motors *BETTER*.

JOHNSON SLEEVE BEARING BRONZE HEADQUARTERS
580 S. MILL STREET NEW CASTLE, PA

▲ Mention Item NED-2623 when writing ▲

FIVE YEARS HENCE—*this* year's MacRae's Blue Book will *still* be in continual use—as a buying reference in thousands of important purchasing offices—doing a world of good for its advertisers.

For Advertising Rates Write
MacRae's Blue Book
A DIRECTORY OF AMERICAN INDUSTRY
Used Continually in 55,000 Buying Offices
18 E. HURON STREET • CHICAGO
OFFICES IN PRINCIPAL CITIES

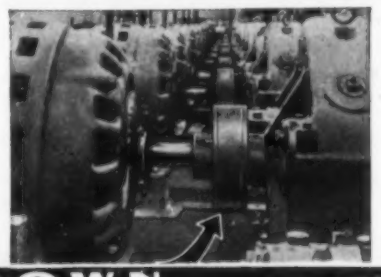
▲ Mention Item NED-2624 when writing ▲

USE KANTI-LEVER COUPLINGS

THEY HELP YOU MAINTAIN PEAK PRODUCTION

With your machines now forced to the limit to gain peak output, the necessity of stopping for repairs becomes more frequent. You can prevent many of these costly interruptions of production by using KANTI-LEVER Couplings, for they have a scientifically designed CUSHION TORQUE that absorbs sudden load shock and torsional vibration—the two main causes of wear, fatigue and failure of machinery. The KANTI-LEVER is different from any other type and gives your machinery a protection that is vitally needed under present abnormal conditions. See cut showing 70 KANTI-LEVERS that have proved invaluable to their user by protecting the driven machines and enabling steady production for over 18 years. SEND FOR BULLETIN No. 28-D DESCRIBING

Kanti-Lever Couplings



BROWN ENGINEERING CO. 129 N. THIRD ST. READING, PA.

▲ Mention Item NED-2626 when writing ▲

Cuts GLASS, CERAMICS, VITREOUS PRODUCTS, ETC.

This DI-MET Rimlock diamond abrasive wheel easily slices all non-metallic hard, brittle materials which are ordinarily unmachinable—even those of extreme hardness. Cuts swiftly and leaves a smooth surface finish. Ideal for sawing heavy glass, quartz, porcelain, steatite, glazed face brick, tile, clay products, etc. Made in copper and steel bonds, in even diameters from 4 to 24 inches. Special 3-inch size also available. Write for more information and recommendations on specific applications.

DI-MET Rimlock

For Speed • For Accuracy • For Long Life

FELKER MANUFACTURING COMPANY
1124 BORDER STREET, TORRANCE, CALIF.

MANUFACTURERS OF DIAMOND ABRASIVE WHEELS

▲ Mention Item NED-2627 when writing ▲

LIMA GEARSHIFT DRIVES

Engineered for Performance

They are engineered for fast, precision production and to increase operator efficiency and accuracy. That is why LIMA Gearshift Drives are playing such an important part in machine tool and production equipment operations today.

Let us tell you how LIMA Gearshift Drives will increase your production. Wire or write us for address of Lima Engineering Service nearest you.

★ Buy War Bonds for Quick Victory ★

Large enough to successfully serve you, yet small enough to give personal attention to your needs.

THE LIMA ELECTRIC MOTOR CO. 352 Findlay Road LIMA, O. U. S. A.

▲ Mention Item NED-2628 when writing ▲

NEW Processes AND Materials

WATERPROOFING MATERIAL

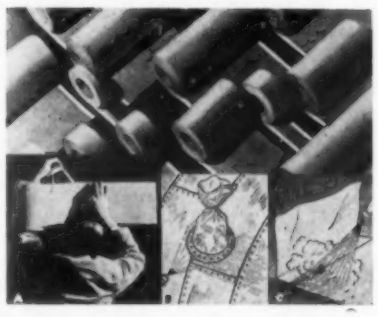
Cloth, paper and many other products can be made water-repellent by exposing them to chemical vapors of compound called Dri-Film. Material is now being used for treatment of ceramic insulators in radio equipment and is found to be nine times more effective than wax which was previously used as water repellent. In addition results are permanent.

This material is a clear liquid which vaporizes at temperature below 100 degrees Cent. Articles to be treated are exposed in closed cabinet to these vapors for few minutes. Products are taken out and may be exposed to ammonia vapor to neutralize corrosive acids which may have collected during treatment. Film formed on surface of products is so thin that it cannot be detected by chemical analysis or microscope. It prevents water from spreading to form continuous film. If moisture does collect it is in form of small isolated drops.

Compound is also being used on laboratory glassware where it is desirable to have flat surface on columns of liquids which are to be measured. Developed by **General Electric Co.**, Research Laboratory, Schenectady, N. Y.

▲ Mention Item NED-2629 when writing ▲

ROLLS OF MASKING PAPER



Production of masking paper in rolls with edge already gummed and ready to apply facilitates handling. Covering and fastening is combined into one operation. Paper lends itself readily to masking flat surfaces, straight edges, striping and for covering protruding parts. Paper is light in weight and treated to resist paint. Gummed edge is protected with cover tape. Rolls are available with single or both edges gummed. Standard rolls are 200 feet long and in widths of 3, 6, 12, 18, 24 and 36 inches. Other widths are available on special order. Made by **Adhere, Inc.**, 1220 S. Maple Ave., Los Angeles, Calif.

▲ Mention Item NED-2630 when writing ▲

PRESSURE GREASE

Compounded expressly for use with pressure systems, Motor Mica reinforced pressure grease is free from alkalies and acids. It deposits no carbon and has good lubricating properties at high or low temperatures, it is claimed. Grease is made of high grade materials to which has been added sufficient amount of Motor Mica anti-friction compound to provide maximum lubrication, manufacturer states. Made by **Scientific Lubricants Co.**, Dept. A, 3462 N. Clark St., Chicago, Ill.

▲ Mention Item NED-2631 when writing ▲

These unretouched Pictures show you why welders do better work with AO NOVIWELD-DIDYMIUM LENSES

The photo, at right, shows that welding goggles equipped with Noviweld-Didymium Lenses enables a flame-welder to look right through the cloudy yellow flame of burning sodium vapors and see the rod and molten area more clearly.

. . . and NOVIWELD-DIDYMIUM LENSES offer you all these other advantages, too . . .

Noviweld-Didymium Lenses are considered by many who have tested them, to be the greatest welding glass *ever* developed!

AO Noviweld-Didymium absorbs Sodium flare and *also* protects welders' eyes against BOTH ultra-violet and infra-red radiation.

And Noviweld-Didymium has the following *other* advantages: it preserves orange and red color values, it is ground and polished to ophthalmic standards of quality, *and* present stocks indicate *immediate delivery* in shade numbers 4, 5 and 6 for welding goggles.

Get in touch with your nearest AO Branch Office today.

American Optical COMPANY
SOUTHBRIDGE, MASSACHUSETTS

▲ Mention Item NED-2632 when writing ▲

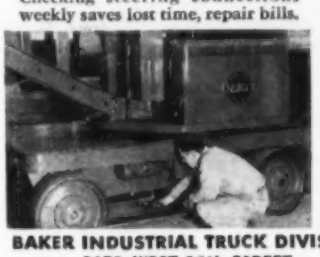
How to keep Your Trucks Running FOR THE DURATION

Proper maintenance of industrial trucks always pays dividends, but today it becomes a deciding factor in the success of our war production effort.

FIRST—Provide good floor conditions and DO NOT overload.
SECOND—Place trucks under the care of competent mechanic.
THIRD—Lubricate regularly as instructed by manufacturer.
FOURTH—Keep a maintenance record for each truck.

Correct lubrication according to instructions is a first essential.

Checking steering connections weekly saves lost time, repair bills.



EVERY WEEK—Test service and parking BRAKES. Adjust as required, reline if necessary. Test STEERING CONNECTIONS and adjust according to instructions. Check WHEEL ALIGNMENT, LIFT OR HOIST, and ELECTRICAL EQUIPMENT. LUBRICATE as instructed.

EVERY MONTH—Inspect power axle, wheel bearings and universal joints, spindle bearings, drive and torque yokes, Oldham coupling, trailing axle and wheels, brake drum, motors, brushes, controller, contactor, limit switches, hydraulic lift. Keep moving parts clean and lubricated. Follow detailed instructions from manufacturer.

Maintenance check list is available in bulletin form. Write for your copy or copies today.

BAKER INDUSTRIAL TRUCK DIVISION of the Baker-Raulang Co.
2179 WEST 25th STREET • • • CLEVELAND, OHIO
2900-2E-43

Baker INDUSTRIAL TRUCKS

▲ Mention Item NED-2633 when writing ▲

One Aridifier a Year Ago—Six in This Plant Today!

Made by the Makers of Logan Lathes

That's the Record at Pelton Steel Castings Co. Milwaukee, Wisconsin

Why the additional Aridifiers were installed is told in the following statement by a company official.

"Aridifiers materially reduced the cost of air-operated tool upkeep. The saving in maintenance alone is more than enough to amortize the cost of our portable grinders every year and a half. Moisture and dirt in our grinding tools, operating at several thousand r.p.m. caused excessive wear with much lost maintenance time and material tool damage."

The cost-reducing performance of the Aridifier in this large steel foundry, employing 250 men and melting over 45 tons daily, is typical. A leading aircraft manufacturer uses over 400 after a test installation of two Aridifiers.

The Aridifier removes moisture, oil and dirt from compressed air or gas lines in a way that cuts costs. Send for Bulletin 639, which gives facts for every industry using compressed air.

LOGAN ENGINEERING CO.
4904 Lawrence Ave., Chicago, Ill.
Offices in Principal Cities

The ARIDIFIER
Dries and Cleans Compressed Air

▲ Mention Item NED-2634 when writing ▲

PRESSURE SWITCH for Marine Service

dripproof and watertight

CLASS 9013

TYPES AW & AW1

The Class 9013 Types AW and AW1 pressure switches are built for marine service to conform with American Bureau of Shipping Regulations for dripproof and watertight switches. The switches differ from standard in the use of a special sheet steel enclosure with drip hood and gasket seal. Type AW is standard. Type AW1 includes a release valve as illustrated. The switches may be adjusted in a variety of settings up to 225 lbs. maximum.

ELECTRICAL RATINGS

	Voltage	Single Phase A.C.	Polyphase A.C.	D. C.
Double Pole Types AW & AW1	110V.	2 H.P.	3 H.P.	1 H.P.
	220V.	3 H.P.	5 H.P.	1 H.P.
	440-550V.		5 H.P.	.....
	32V.			½ H.P.

SQUARE D COMPANY
REGULATOR DIVISION
6060 RIVARD ST., DETROIT, MICH.

▲ Mention Item NED-2635 when writing ▲

MILLIONS OF HANSEN STAPLES FLYING FOR VICTORY

IF you have a tacking, fastening, assembly or tagging problem, which requires either tacks, nails or glue, by all means investigate the HANSEN one-hand TACKER—now doing so much to speed up the construction of plywood-built airplanes, boats, etc. and doing war-time work in many other industries—Navy, Ordnance, Machine Tool, Building—saving time, steps, materials.

Light-weight, portable, one-hand operation, the Hansen Tacker has that rat-a-tat speed that drives single-leg Tacks or double-leg Tackpoints fast as you grip. Millions of Hansen Tacks and Tackpoints, up to ½" length, are driven weekly in all types fastening, assembly, tacking. *Investigate!*

What is your Tacking problem? ASK FOR FOLDER.

Klink-Tite HANSCO A. L. HANSEN MFG. CO. 5164 RAVENSWOOD AVE. CHICAGO, ILL.

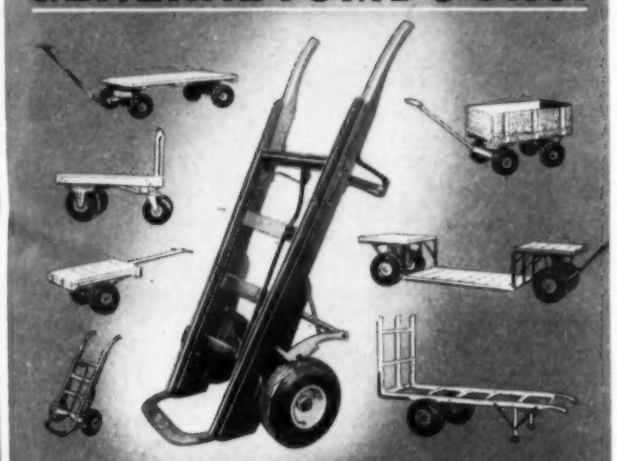
▲ Mention Item NED-2636 when writing ▲

AGAIN AFTER THE WAR

ORANGEVILLE

ORANGEVILLE TRUCKS and BARROWS ... equipped with

GENERAL JUMBO JRS.



will protect your floors... equipment... merchandise

You *may* have these latest Orangeville industrial truck models operating in your plant today. If so, you bought them before Pearl Harbor . . . before critical material shortages put them on the shelf for duration.

Of course, when war is over, you'll again be able to buy sturdy, labor-saving Orangeville trucks and carts. And then, as before, their standard tire equipment will be GENERAL Jumbo Jrs.—*industrial pneumatic tire favorite!*

Jumbo Jrs. *stand up* on every type of industrial truck . . . no matter how "tough" the job may be. For Jumbo Jr. can take it . . . protecting load, floor and truck alike against jarring and bumping.

And GENERAL Jumbo Jr. is a *safer* industrial tire...exclusive wide-rim design assures extra stability. The tire will not pick up metal chips, clippings or filings from the floor! Wears longer . . . traction is *better* on every surface! Yes, the GENERAL Jumbo Jr. tire-tube-wheel combination is the right team to pick . . . it's *designed* to do the job!

For further information write or call

THE GENERAL TIRE & RUBBER COMPANY

Tires 8" to 24" overall diameter. Load capacity 100 lbs. to 1500 lbs. per tire. 2-4-6 and 8-ply with separate tubes and the heavy duty wheel.

Available in new Air Corps specification sizes for war orders and essential industrial use.

GENERAL JUMBO JR. INDUSTRIAL BALLOON TIRES

▲ Mention Item NED-2637 when writing ▲

New Processes & Materials

WINDOW CLEANER

Capable of removing soot, smoke deposits, rust, lime and film caused by various fumes, this factory window cleaner acts chemically. It dissolves deposits instantly and makes them removable by flushing with water. It is particularly adaptable for cleaning sky-lights and saw-tooth roofs. It may also be used in cleaning drinking fountains, washbowls and floors. It is claimed to contain no soap, lye or caustic and will not injure hands, clothes or drains. Made by **Berman Chemical Co.**, 3290 Tenth St., Toledo, Ohio.

▲ Mention Item NED-2638 when writing ▲

WELD SPATTER PREVENTIVE

Effectively preventing adhesion of welding spatter to work, No-Spat is liquid coating which is brushed over seam and surface where spatter may fall. After welding, spatter may be wiped away, and no chipping or grinding is necessary. Liquid is claimed to fuse with molten metal and maintain maximum tensile strength by floating off impurities, preventing porosity and stabilizing arc.

Because of complete absence of obnoxious fumes, material may be used on welding operations in confined areas. Welding jigs coated with liquid are fully protected from adhering spatter and precision alignment of work is assured. Material is effective rust protector, will not freeze and may be used over full welding range of welder. Made by **The Midland Paint & Varnish Co.**, 9115 Reno St., Cleveland, Ohio.

▲ Mention Item NED-2639 when writing ▲

PROTECTIVE SKIN PRODUCTS

Improved to meet needs of women worker's, Pro-Tek-Tor protective skin creams and lotions are available for employees encountering all types of hazards to their skin. No. 6 is made of lanolin and other oils in lotion form for use on hands, arms or face. It dries upon application and affords protection against irritation from contact with cutting and lubricating oils, kerosene, petroleum, solvent thinners, lacquer and paint. No. 35 is companion product containing antiseptic.

No. 7 is liquid emulsion and dries upon application. It may be used on hands, arms or face and is waterproof. It provides protection of skin against attack by fumes, ammonium nitrate, chlorine, acids and alkalies. Companion No. 35 contains added antiseptic.

Pro-Tek-Tor No. 8, containing lanolin and vegetable oils, is cream type emulsion. In addition to giving protection against irritation, it leaves skin soft, pliable and completely dry. It is recommended for use by workers handling solvents and oils. Made by **Nielco Laboratories,** 19720-24 Florence Rd., Detroit, Mich.

▲ Mention Item NED-2640 when writing ▲

"DRAFTING Oomph"

Precision-ize Pencil Drawings
Sharp Prints without Inking
Relieve Draftsmen Shortage
Speed Production Time
Cut Operating Costs
Make Old Boards Better Than New

A LONG PRODUCT

Cover worn-out boards. Make new boards more efficient. Most perfect drawing surface yet conceived. In use in over 1000 plants. Costs very little. Write for details and trial offer on NO-INK DRAWING BOARD TOPS.

Yes, Immediate Delivery!

W. H. LONG CO., 425 N. CLARK ST., CHICAGO—EST. 1911

▲ Mention Item NED-2641 when writing ▲

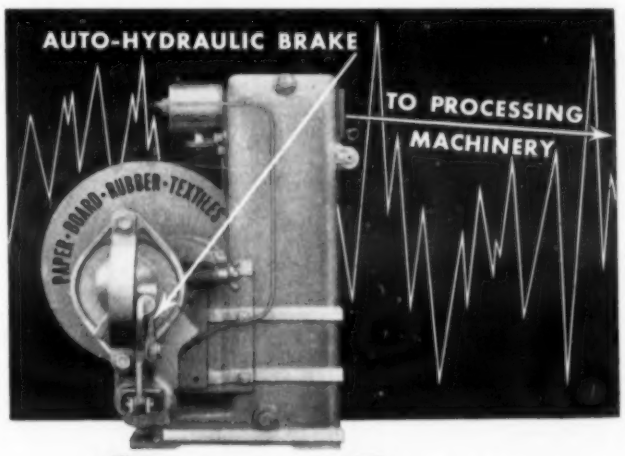
THIS CHART FREE

HOW TO GET the MOST from UNIT HEATERS

Write to...

MODINE MANUFACTURING CO., 1702 RACINE ST., RACINE, WIS.

▲ Mention Item NED-2642 when writing ▲



Uniform Tension

DESPITE SPEED CHANGES

Also Handles Gauze, Burlap, Osnaberg Cloth, Waxed Papers, Abrasive Papers, Abrasive Cloth, Varnished Cambrics, Imitation Leather, Coated Papers, Uncured Rubber, Semi-Cured Rubber.

Used in converting, waxing, coating, embossing, printing, etc.

CATALOG ON REQUEST

JOHNSTONE Engineering & Machine Co. DOWNINGTOWN, PA.

Labor and time-saving always result, and increased production, improved quality and less spoilage almost invariably result, when the Johnstone Uniform Tension Unwinder is installed. The machine operator need no longer be constantly on the alert to apply or release the hand brake controlling the speed of the unwinding roll. The "Tensioneer" of this machine practically "thinks for itself" in actuating the Auto-Hydraulic Brake. Once the machine tension is set, by adding or removing weights, the operator can forget all about tension, even in starting, stopping or jogging starts. This "pull-balancing" automaton maintains the web tension uniform whether the roll speed is 15 F.P.M. or 1500 F.P.M., sometimes even at 2000 F.P.M., regardless of the diameter of the roll.

▲ Mention Item NED-2643 when writing ▲

there's MORE to PISTON RINGS than meets the EYE...

Piston ring precision ranging from the thousandths of an inch to the millionths of an inch and Ring Design engineered to specific use requirements are important factors in automotive, aircraft and industrial piston ring performance.

In Ramco rings, you are assured of rings that meet all specifications. Twenty-five years of specialization has given us a fund of engineering experience in developing rings to meet specific use requirements. During this time, our engineers have developed many advances in ring construction, design and manufacture which have resulted in our products being widely employed in the transportation, automotive, engine, aircraft and other industries.

GET RAMCO RECOMMENDATIONS. Engine builders and industrial users of piston rings, write us for specific proposals or further data on Ramco products. Address

Ramsey Accessories Mfg. Corp., 3647 Forest Park Blvd., St. Louis, Mo.

RAMCO *Especially Engineered* PISTON RINGS

FOR YOUR SPECIFIC REQUIREMENTS FOR REPLACEMENT . . . FOR ORIGINAL EQUIPMENT

▲ Mention Item NED-2644 when writing ▲

● Send your crippled VICTOR cutting tips to your VICTOR Distributor for prompt and proper reconditioning. DON'T THROW THEM AWAY. COPPER IS PRECIOUS FOR OUR WAR EFFORT. If you treat your cutting tips carefully, see to it that their seating surfaces are not marred, and use proper tip cleaning drills to keep ports free from obstruction, they will last a long time.
UNDER NO CIRCUMSTANCES THROW CUTTING TIPS AWAY—SEND THEM TO PROPER REPAIR STATIONS.

VICTOR EQUIPMENT COMPANY
SAN FRANCISCO—844-54 Folsom St. LOS ANGELES—3821 Santa Fe Ave.

▲ Mention Item NED-2645 when writing ▲

KLEMP Steel Stair Treads

Guard most vital points of your traffic. Prevent accidents—fire—destruction—loss of time and production!

KLEMP WELDED GRATING—Steel rods pressure welded on bearing bars.

KLEMP RIVETED GRATING—Truss construction for heavy stresses.

Insure utmost in solid non-skid security of footing. Lifetime service practically maintenance free. Easy to clean and paint.

KLEMP PRODUCTS FOR ALL TRAFFIC

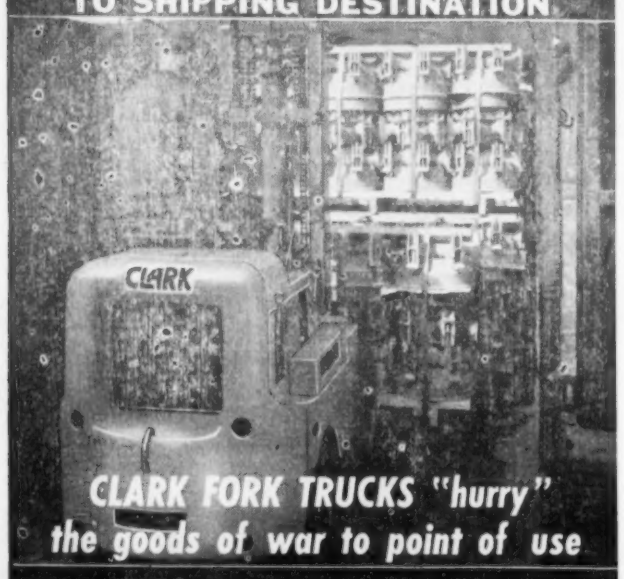
HEXTEEL—
Heavy Duty Surface Armor
FLOORSTEEL—
Rolls out like a rug
STEEL GRATINGS

Send for Complete Catalog. Write

WM. F. KLEMP COMPANY
"Steel Flooring Specialists"
6607 S. Melvina Ave. Chicago, Illinois

▲ Mention Item NED-2646 when writing ▲

FROM THE BUSINESS END OF THE PRODUCTION LINE TO SHIPPING DESTINATION



CLARK FORK TRUCKS "hurry" the goods of war to point of use

CLARK TRUCTRACTOR
DIVISION OF CLARK EQUIPMENT COMPANY
BATTLE CREEK, MICHIGAN, U.S.A.

▲ Mention Item NED-2647 when writing ▲

New Processes & Materials

FLOOR RESURFACER

Bonding tightly to almost all types of floors, mastic floor composition works to good feather edge so that no chipping or cutting of old floor is required. All materials used are of definite and close relationship so that when mixed together they blend into closely knit tile structure in short period of time. Manufacturer claims great cohesive strength, tight texture, ability to repel water and acids as well as resistance to point loads. Section of floor illustrated has been subjected to constant wheeled traffic for one year.

Material is shipped in self-contained drums of non-returnable variety. Application is standard one for trowel or power float. Setting time is 24 hours. Made by Flash-Stone Co., Dept. RM, 1936 N. Twelfth St., Philadelphia, Pa.

▲ Mention Item NED-2648 when writing ▲

GLASS TANKS

Noncorrosive and shock resisting, glass tanks for industrial or commercial applications are built up of heavy tempered glass plates to required shape and size. Method of heat treating gives tank material strength four to five times greater than ordinary glass. It will withstand continuous operating temperatures of 650 degrees Fahr. and instantaneous thermal shock of 400 to 500 degrees.

All joints are accurately ground. In addition, use is made of joining material developed especially for this purpose by company's research laboratory. Entire tank is usually surrounded by wooden frame work filled with compound. Frame serves both as insurance against leaks and as protection against severe physical blows. Glass tanks are particularly suited for pickling of steel and other metals, and for food, chemical, photographic, synthetic rubber, textile, paper and electroplating industries. Made by Pittsburgh Plate Glass Co., Grant Building, Pittsburgh, Pa.

▲ Mention Item NED-2649 when writing ▲

If you want a bearing with high load capacity, small size that aids in simplifying machine designs, plus simple yet efficient lubrication, you will want to read Bantam's new catalog on Quill Bearings. In it you will find the reasons why these compact anti-friction bearings have contributed to the long life and efficient, economical operation of many types of equipment. And you will be surprised at the low initial cost of the Bantam Quill Bearing. Write today for this catalog and find out for yourself how these unusual bearings can help *your* product. Ask for Catalog Z-104.

9 Features of Bantam's Quill Bearing

1. High radial load capacity in limited area.
2. Rollers and races accurately ground and hardened.
3. Design is simple — there are no fragile parts.
4. Flanges of outer race are ground on inside face.
5. Easy to lubricate.
6. Easy to install.
7. Curvilinear trunnions for greater strength.
8. One piece outer race —rollers are self-retained.
9. Roller length is correctly proportioned to roller diameter.

BANTAM BEARINGS
STRAIGHT ROLLER · TAPERED ROLLER · NEEDLE · BALL
THE TORRINGTON COMPANY · BANTAM BEARINGS DIVISION
SOUTH BEND, INDIANA

▲ Mention Item NED-2650 when writing ▲

5 NEW BULLETINS tell you

How to Select . . .

THE RIGHT THERMOMETER for your Process

Wheelco has published five new Bulletins, which illustrate and describe various types of Thermometers and explain their function in relation to their intended application.

You will find a wealth of information in these Bulletins on Indicating Thermometers, Indicating Therm-otrols (Indicating, "Electronic Principle" Thermometer Controllers), Recording Thermometers and Recording Therm-otrols (Recording, "Electronic Principle" Thermometer Controllers), all of which are available in ranges from —100°F. to +1000°F., or —70°C. to +550°C. Also illustrated and described are Thermometer Bulbs, Bulb Sockets, Capillary, Capillary Armor, Charts, Chart Ranges, Scale Ranges, etc. Explanation of how the Flame-otrol (combustion safeguard), Purging Timers, Program Control and Proportioning Control can be integrally incorporated in the various Thermometers is given.

Write for any one, or all of these Bulletins without obligation.

Wheelco Instruments Co.
829 W. HARRISON STREET CHICAGO, ILLINOIS
Originator of "Electronic Principle" Temperature Controls

▲ Mention Item NED-2651 when writing ▲

Adhere SPRAYMASK

for assembly, painting, camouflage of PLASTIC-GLASS *windshields, canopies, bomber noses and turret blisters.*

A one-coat spray-on mask for plastic-glass parts. Waterproof, paint-proof and abrasion-resisting. Now used by many leading aircraft companies for masking parts before assembly . . . to be left on for continued protection until all painting and camouflage are finished. Saves time. Protects valuable formed plastic-glass parts. Peels off clean and shiny. Write for details, sample prices.

Mfrs. of ADHERE SPRAYMASK, *Ready-to-apply Insignia and Window Masks and Edge-gummed Masking Paper in Rolls.*

ADHERE, INC. 1220 MAPLE AVENUE LOS ANGELES, CALIF.

▲ Mention Item NED-2652 when writing ▲

Foolproof production safety at low cost

"Linemaster" FOOT TREADLE SWITCH

A STURDY SNAP-ACTION SWITCH, MOUNTED IN A RUGGED, CAST IRON CASING

RATED AT: 20 AMPS ON 250 VOLTS MECHANISM DOUBLE POLE

SIZE: 7" long, 4" wide, 3 1/4" high.
WEIGHT 5 1/4 lbs. FINISH: Light grey enamel.

Almost like having a "third hand" at every machine. Offers maximum safety features; especially valuable where unskilled or semi-skilled labor is employed. "Linemaster" is fully enclosed; hooded for protection against dirt and tampering.

No. 4141-D (Press to start; press to stop) $7.50
No. 4141-S (Hold down for closed circuit) $8.50

SIMONDS MACHINE CO., INC.
SOUTHBRIDGE, MASSACHUSETTS

▲ Mention Item NED-2653 when writing ▲

EUREKA TOOL STEEL ELECTRODES SAVE

tons of vital TOOL STEEL

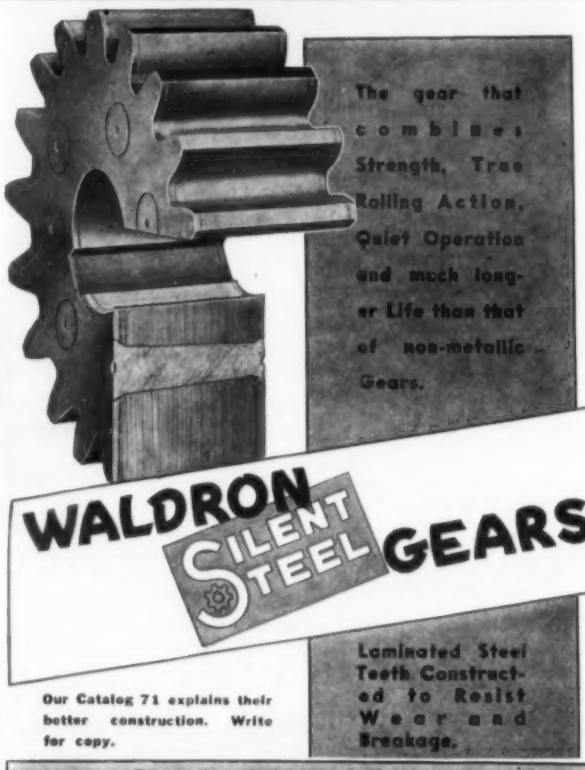
Every day, tons of critical tool and die steels are being saved for vital war needs by the use of EUREKA Electrodes for the welding of worn or fractured dies. These EUREKA Electrodes can be used to effect maintenance repairs in *your* shop on oil, air and water hardening and hot working steels.

EUREKA Electrodes also save a vast amount of tool and die steels when used for the composite construction of dies, by welding on the working edges of *less* expensive and easily procurable carbon steels.

If you really want to save tool and die steels in the construction or repair of your dies it will pay you to write for our 16-page catalogue today. It describes in detail the use of the complete line of EUREKA Tool Steel Electrodes.

WELDING EQUIPMENT & SUPPLY CO.
229 LEIB STREET • DETROIT, MICHIGAN

▲ Mention Item NED-2655 when writing ▲

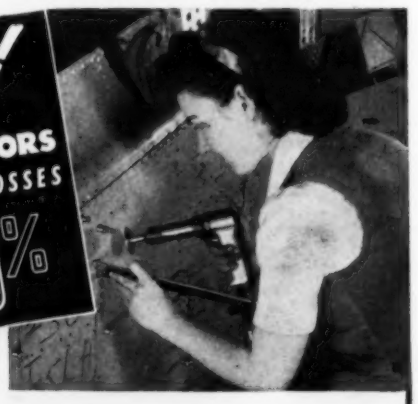


Our Catalog 71 explains their better construction. Write for copy.

Manufactured and Sold by the
JOHN WALDRON CORPORATION
New Brunswick, New Jersey

▲ Mention Item NED-2656 when writing ▲

NEW! CLECO RIV-N-JECTORS CUT RIVET LOSSES 90%



Riv-N-Jector is held in the left hand—rivet hammer in the right, as usual.

The Riv-N-Jector (patent pending) has a magazine holding about 50 rivets, which can be released one at a time into the rivet hole. Slight pressure of the fingers releases the rivet, while another rivet feeds down for insertion in the next hole. Riv-N-Jectors are easily loaded by a hopper-loader.

RIV-N-JECTOR ADVANTAGES

• **Less Waste.** Using a Riv-N-Jector, the operator only loses 2 or 3 rivets out of 50, compared with loss of more than half when handled by hand—*a 90% saving!* • **Greater Speed.** With Riv-N-Jectors, operators often insert and drive 30 rivets per minute. • **Easy Operation.** Operators learn to use Riv-N-Jectors practically at a glance. • *Write for Bulletin 89.*

The Riv-N-Jector is light, easy to handle.

THE CLEVELAND PNEUMATIC TOOL CO.
3781 EAST 77th STREET CLEVELAND, OHIO
BRANCH OFFICES IN ALL PRINCIPAL CITIES

▲ Mention Item NED-2657 when writing ▲

New Processes & Materials

BOILER WATER TESTING UNIT

Designed for use with chemicals in testing and control of boiler feedwater conditions, series F testing units meet needs of companies requiring extensive analysis of their boiler water, including factors of alkalinity, hardness, phosphates, chlorides, pH value and excess sodium sulphite. Feature of these units is check chart which affords constant graphic record of individual boiler conditions. More complete units are available which provide for more detailed analyses. Made by American Colloid Div. E. F. Drew & Co., Dept. NE, 15 E. Twenty-sixth St., New York City.

▲ Mention Item NED-2658 when writing ▲

INDUSTRIAL FINISHES

Developed as effective replacement for line of Wax-Fortified Paints, War-Formula paints for industry include dado enamel, machine enamel, primers, undercoat and thinners, as well as flat and gloss mill white and commercial interior paints. These finishes are available in wide variety of colors for applications to industrial equipment in plants. They are designed to reduce maintenance costs and protect equipment. Made by **S. C. Johnson & Son, Inc.**, Dept. I. M., Racine, Wis.

▲ Mention Item NED-2659 when writing ▲

PROTECTIVE METAL FINISH

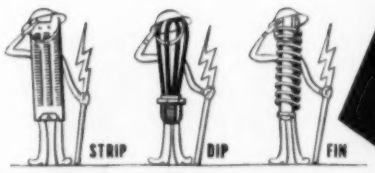
Capable of withstanding thermal shock and providing complete protection against corrosion or attack by acids, caustics and similar solutions, Armor-Vit alkali alumina silicate has been developed for application to all types of metal products. Made of oil bearing halloysite, finish is applied by ordinary spraying or dipping methods. After curing in indirect-fired air-circulating oven at approximately 750 degrees Fahr., coating becomes hard, heat resistant and practically insoluble.

Use of agglutinating agent increases ease of application and adherence to metal base. Most metals may be cleaned by ordinary methods. Sand-blasting is usually recommended for cast iron prior to application.

Finish is claimed to withstand standard 200-hour salt spray test, extended weatherometer tests and acid or alkali tests. Illustration shows section of exhaust pipe, portion of which was coated prior to exposing to weather for five months. Treated section was unaffected, while exposed metal was almost corroded away. Finish is also resistant to impact and abrasion. Made by **Chicago Vitreous Enamel Products Co.**, Cicero, Ill.

▲ Mention Item NED-2660 when writing ▲

HOW TO PUT ELECTRIC HEAT TO WORK FOR YOU



THERE'S A G-E MIDGET FOR YOUR JOB

G-E MIDGET HEATERS will give you the right amount of heat right where you need it. It's easy to select the type best suited to your specific needs. All of them will give you these benefits: convenience, cleanliness, accuracy, safety, and economy. The possible uses of these versatile heaters are limited only by the imagination of the user. All are sturdy, compact, and easy to install.

USE "STRIP" for air heating or clamp-on contact heating.

USE "DIP" for heating nearly all liquids—water, oil, and mild chemical solutions.

USE "FIN" wherever a warm air flow is needed.

(Only orders with AA3 or better priority can be scheduled.)

THIS G-E CATALOG (GEA-650B) will give you complete information, including installation instructions, prices, and ordering details on all small G-E electric heating equipment. Send for your copy today. *General Electric, Schenectady, N. Y.*

GENERAL ELECTRIC

▲ Mention Item NED-2661 when writing ▲

Established 1855

THOMAS P. SKELLY BOLT COMPANY
PHILADELPHIA CARRIAGE BOLT WORKS
1828-32 West Ingersoll St. Philadelphia, Pa.

▲ Mention Item NED-2662 when writing ▲

EDMONT INDUSTRIAL GLOVES For MEN and WOMEN

Edmont RUBBER COATED FABRIC LINED

EDMONT gloves offer complete hand protection against oils, solvents, acids, caustics and other corrosive materials. The reinforced fabric lining makes them snag proof and tear resistant. Comfortable on the hands and easy off and on. Flexible and efficient to work with. Noted for exceptionally long economical wear. A coating and style for every industrial use.

Under rubber regulations Edmont gloves are now available only *"for industrial use in handling corrosive and severely abrasive materials"*

Write for samples and prices

EDMONT MANUFACTURING CO.
503 Orange St., Coshocton, Ohio

NEOPRENE—High resistance to acids, caustics, solvents and rough, sharp or jagged articles. Also heat protective.

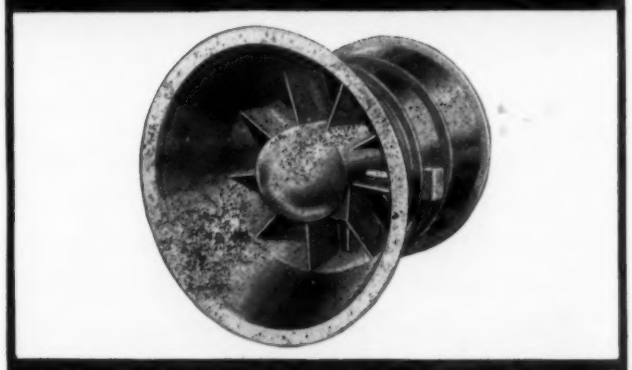
SYNTHETIC "7"—Best for petroleum solvents. Oil, grease and acid proof. Long abrasive wear.

LATEX & RECLAIM—For light acids, caustics and other corrosives. Not to be used in solvents.

▲ Mention Item NED-2663 when writing ▲

Get more production with INTERNATIONAL High Efficiency BLOWERS

Available in various applications to meet your individual requirements . . . STACK BOOSTER FANS & BLOWERS—SINGLE & DOUBLE-STAGE AXIAL BLOWERS—HIGH TEMPERATURE FANS & BLOWERS—NOISELESS FANS—BLAST KOOLERS & COOLING FANS. Put your forced air problems up to us. Send for Catalog No. 71.



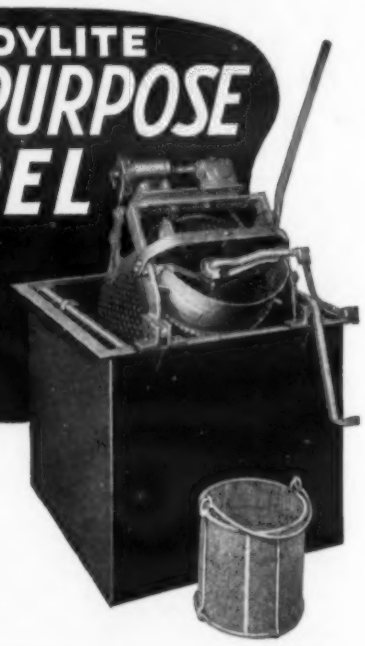
INTERNATIONAL ENGINEERING, INC.
DAYTON, OHIO

▲ Mention Item NED-2664 when writing ▲

▲ Mention Item NED-2665 when writing ▲

THE UDYLITE
MULTI-PURPOSE
BARREL

FOR CLEANING, DRYING, PLATING, RINSING OR PICKLING OF SMALL PARTS:



Here is a barrel that is really "Jack of all work"—It will do practically anything required in the finishing of small parts and at a saving in time and money. Used as a plating barrel, it really turns out the work—fast!

The Multi-Purpose Barrel is sturdily built for long, trouble free service. Efficiently designed and constructed in the typical Udylite manner. Bearings are located well above solution level and cathode contacts may be quickly and easily removed for cleaning.

The cylinder is unusually large, capable of handling a big load of smaller parts. Unloading is quickly accomplished by pulling the dump lever at the side.

The Multi-Purpose Barrel is available in several combinations to meet your requirements—❶ For Cyanide Plating or Electro Cleaning—❷ For Acid Plating—❸ For Tumble Cleaning—❹ For Pickling—❺ For Dyeing—❻ For Rinsing—Each equipped for its specific use.

SPECIFICATIONS

TANK—32 x 36 x 30, 125 gallon capacity. Cylinder 23 x 23 with 16 inch opening; capacity one peck or 50-70 pounds. Built-in loading chute. Perforation 3/16"—larger if desired. Motor 1/6 H. P. 110 volts, 60 cycle, single phase, AC, with cord and plug.

THE UDYLITE CORPORATION
1651 E. Grand Blvd., Detroit, Mich.
Chicago 1943 Walnut Street — Long Island City, N. Y. 11-16 44th Drive — Cleveland 4808 Carnegie Ave

▲ Mention Item NED-2666 when writing ▲

New Processes & Materials

PROTECTIVE CLOTHING

Made of plasticized material, West Durma-Gard protective sleeves, aprons and overalls aid in preventing industrial skin diseases. Garments for men and women are impervious to most acids, including nitric and sulphuric acid, and are resistant to flame, dust, powders and other irritants. Their light weight and flexibility make them comfortable to wear. Protective clothing is long wearing and durable, it is claimed. It may be washed in soap and water. Sleeves are adjustable to fit wrist snugly and top is shirred with lastex for proper ventilation. Made by **West Disinfecting Co.**, Dept. DE, 42-16 West St., Long Island City, N. Y.

▲ Mention Item NED-2667 when writing ▲

METAL CLEANER

Adaptable for cleaning and de-oxidizing aluminum, copper, nickel and galvanized metal, No. 1921 cleaning powder is readily soluble in warm water. It can be used in either steel or wooden tanks and is available in two formulas, one for still tanks and one for power washing machines. In solution of 4 ounces per gallon of boiling water, it will remove oils as heavy as SAE 50 lubricating oil in 1.45 seconds in still tanks. Solutions of 2 ounces per gallon will meet cycles of 1.5 minutes in removing drawing compounds in power washing machines. Copper oxide is removed in approximately 30 seconds by solutions of 4 ounces per gallon in warm water.

Material rinses easily in either cold or hot water. Made by **Nielco Laboratories**, 19720-24 Florence Rd., Detroit, Mich.

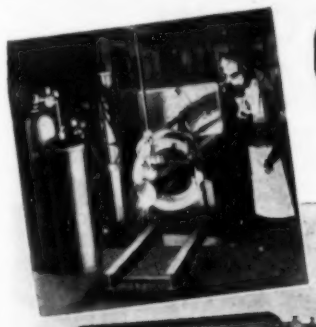
▲ Mention Item NED-2668 when writing ▲

FLOOR CLEANING COMPOUND

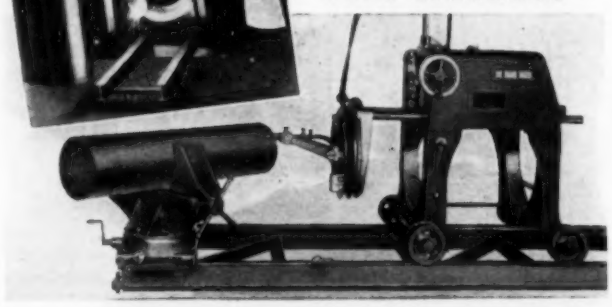
Absorbent of oils and grease, floor cleaning compound known as Fibre-Tex eliminates danger of fire inherent in many materials used for this purpose. Product will not burn even when flame of blowtorch is played directly upon it, as shown in illustration, nor as result of spontaneous combustion, it is claimed.

Its use is recommended wherever machinery is serviced, or where oil or grease may collect or be spilled upon floors. Grease and oil caked dirt are removed and safety stripes and other floor markings made plainer. Compound is packaged in 50-pound cartons and is distributed through automotive, hardware, marine, paper, and mill and janitor supply wholesalers. Made by **Lacey-Webber Co.**, 232 E. Water St., Kalamazoo, Mich.

▲ Mention Item NED-2669 when writing ▲



Oster No. 222
TORCH CUTTER
FOR
PIPE WELDERS



No Templates—No Cams—No Layouts

Easy to operate, the *Oster No. 222 Torch-Cutter* makes straight cuts, 90° full size tees, 90° reducing tees, 45° to 90° branch reducing tees, ells, miters, Y's, blunt bull plugs, etc.,—more than 150 different cuts in all.

As pipe is cut it is beveled perfectly for welding. Capacity 2½-in. to 12-in. This machine is a big time saver, performing work otherwise requiring high skill. Write for details.

THE OSTER MANUFACTURING COMPANY
2066 East 61st St. Cleveland, Ohio, U. S. A.

OSTER

▲ Mention Item NED-2670 when writing ▲

NEW WAYS

of improving old products have sprung up wherever this new material—thermoplastic resin synthetic—has been given a trial. Resistance to acids, alkalies, brine and other corrosive chemicals ... flexibility ... high tensile strength ... many of rubber's advantages, many of copper's, without some of their handicaps—These are a few of the startling facts about—

ACADIA
SARAN*

Acadia engineers will co-operate in helping your firm put SARAN to work. Write us for an engineering bulletin with full data.

Acadia Synthetic Products Division
WESTERN FELT WORKS
Chicago, Ill.: 4035-4117 Ogden Ave.
Detroit, Mich.: 420 Stephenson Bldg.
Branch Offices in All Principal Cities

Largest Independent Manufacturers and Cutters of Hair, Wool and Jute Felts

*Licensee of the Dow Chemical Co.

ACADIA Synthetic PRODUCTS

Processors of Synthetic Rubber and Plastics • Sheets • Extrusions • Molded Parts

▲ Mention Item NED-2671 when writing ▲

CENTURY
Mechanically and
Electrically Balanced
MOTORS

Are Remarkably Free From Vibration

1. Century rotors are dynamically balanced on both ends.
2. The electrical and magnetic circuits are symmetrically constructed to produce an even torque.
3. Slots are skewed to produce a steady torque—eliminating jerks.
4. Cushion bumpers deaden the thud of the shaft shoulder against the bearing when the rotor moves lengthwise.
5. Sleeve bearings are diamond bored for accuracy after they are assembled in the end bracket.
6. Bearing surfaces on the shaft are ground to close tolerances and highly polished.

Your nearest Century Application and Service Engineer will gladly give you full details.

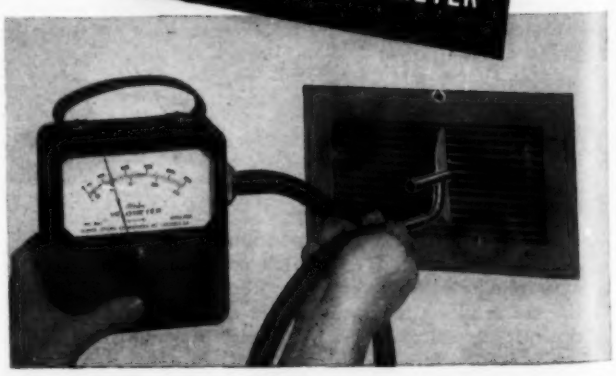
CENTURY ELECTRIC COMPANY
1806 Pine Street St. Louis, Missouri
Offices and Stock Points in Principal Cities

Century MOTORS
1/6 to 600 horsepower

One of the Largest EXCLUSIVE Motor and Generator Manufacturers in the World 309

▲ Mention Item NED-2672 when writing ▲

The Only Instantaneous, Direct Reading, AIR VELOCITY METER



● Only the versatile *Alnor* Velometer can give you instantaneous direct readings of air speed measured in feet per minute. It offers the only convenient and satisfactory instrument for checking draft, leaks around doors and windows or in ducts, velocities of ceiling outlets and similar air diffusers. It is ideal for duct velocities and pressures, velocities at grilles and registers. Anyone can use the Velometer—no calculations, no leveling, no timing.

The Velometer is made in several standard ranges from 20 fpm to 6000 fpm, and up to 3 inches static or total pressure. Special ranges available as low as 10 fpm and up to 25,000 fpm velocity and 20 inches pressure.

Write for Bulletin No. 2448-E.

Illinois Testing Laboratories Inc.
430 NORTH LA SALLE STREET • CHICAGO, ILLINOIS

▲ Mention Item NED-2673 when writing ▲

JONES BARRIER STRIPS

No. 2-151

Solve Most Terminal Problems

• A compact sturdy terminal strip with Bakelite Barriers that provide maximum metal to metal spacing. Prevent direct shorts from frayed wires at terminals.

6 SIZES—Cover every requirement. From 3/4" wide and 13/32" high with 5-40 screws to 2-1/2" wide and 1-1/8" high with 1/4"-28 screws. Jones Barrier Strips will simplify as well as improve the electrical connections of your products.

Three lines of Jones Multi-Circuit Plugs and Sockets fulfill every connection requirement. Hundreds of standard terminals.

Write today for catalog listing complete line of Jones Electrical Connecting Devices.

HOWARD B. JONES
2304 WABANSIA AVE., CHICAGO

▲ Mention Item NED-2674 when writing ▲

FINISHING TIME CUT HALF

● Aro Rotary Burrs and Files for "cleaning up" operations on aluminum castings are effecting big savings in time. Speeds of 17000 r.p.m. are showing the following results:

1. Greatly increased production due to high speed • 2. Better finish • 3. Burrs do not load as fast • 4. More pieces per burr

Numerous operations can be performed more quickly and more efficiently with these small powerful Pneumatic Tools.

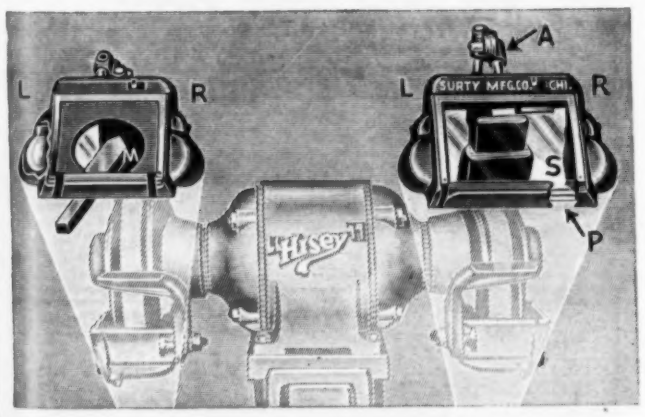
Aro Field Engineers welcome an opportunity to give you the benefit of their wide experience in helping you solve production problems involving Grinding, Burring, Filing, Drilling, Screwdriving, Nutsetting, etc. Write Aro Equipment Corp., Bryan, Ohio.

THE ARO EQUIP. CORP. ARO BRYAN, OHIO

PNEUMATIC TOOLS

▲ Mention Item NED-2675 when writing ▲

GUARDED and LIGHTED . . .



For FASTER, SAFER GRINDING

★ Here's a pair of grinder shields that make dangerous grinding operations safe and easy. Faster too, because they spot a *glareless* light exactly where needed.

Model 4LL at left is equipped with a MAGNIFYING lens that brings the work *up in size* to assure greater accuracy. Model 5LL at right is equipped with shatter-proof glass that can be easily replaced.

These are but two of many types of illuminating shields offered by Surty to protect worker eyesight and increase production.

Get details on Surty's complete line of Guards, Point-of-Operation Illuminators, Internal and External Inspection Units, and other Safety Equipment. Write today!

THE SURTY MANUFACTURING CO., INC.
Manufacturers of Industrial Safety and Inspection Equipment
4137 WEST KINZIE STREET CHICAGO, ILLINOIS

▲ Mention Item NED-2676 when writing ▲

NEW Literature AND Catalogs

INDUSTRIAL SOLDERS—6-page illustrated folder entitled, "Solders That Stand Up," describes fusible alloy, wire, ribbon, foil, flux cored, drop and special solders for all types of applications—table lists substitute solder alloys and compares melting temperatures—additional uses of solder are outlined—tin-lead ratio chart gives helpful data regarding solder fusing characteristics—issued by Alpha Metal & Rolling Mills, Inc., 363 Hudson Ave., Brooklyn, N. Y.

▲ Mention Item NED-2677 when writing ▲

ROOF VENTILATORS—8-page illustrated bulletin No. 217 is descriptive of NCM line of roof ventilators which are made of non-critical materials—various designs are patterned after standard metal ventilators—units are intended for essential applications where metal is not vitally necessary—stationary unit, heat valve, power heat valve, and continuous heat valve types are shown and complete specifications given—issued by Swartwout Co., 18519 Euclid Ave., Cleveland, Ohio.

▲ Mention Item NED-2678 when writing ▲

MAGNET WIRE—28-page illustrated bulletin No. GEA-3911 covers Formex magnet wire—relative properties of Formex and conventional magnet wire are explained through use of table and columnar chart—properties, advantages, types available, application, and engineering data are covered—this insulated wire is adaptable for use in all types of electrical equipment wherein enameled wire is normally employed—issued by General Electric Co., Schenectady, N. Y.

▲ Mention Item NED-2679 when writing ▲

GASOLINE ENGINES—8-page illustrated bulletin, "Harnessing Air," discusses typical applications of heavy duty air-cooled engines in all types of stationary and portable equipment such as air compressors, road machinery and mobile pumps—various styles of gasoline engines in capacities ranging from 1 to 35 horsepower are described—design and construction details of these units are also covered—issued by Wisconsin Motor Corp., Milwaukee, Wis.

▲ Mention Item NED-2680 when writing ▲

HYDRAULIC PACKINGS—4-page illustrated bulletin "Operating Analysis" is chart for specifying and maintaining accurate shop record of hydraulic and pneumatic "U" type packings—chart permits potential user to check application data and other specifications to obtain packing service for practically any type of installation—details on design of double "U" packings are included—issued by Wayne Davies & Co., 325 West Huron St., Chicago, Ill.

▲ Mention Item NED-2681 when writing ▲

SAFETY CLOTHES—4-page illustrated bulletin No. 143 describes this complete line of head and body protection for men and women industrial workers—bulletin covers protector helmets for both men and women, welders' helmets, rain and storm capes, and new line of safety hats and breast protectors for factory women—issued by The Strauss Co., 938 Ewart Bldg., Liberty Ave., Pittsburgh, Pa.

▲ Mention Item NED-2682 when writing ▲

R-S "A" Metal Costs Less

Rugged 30-inch valve for high pressure drops. "A" metal construction.

R-S "A" Metal, a tough, dense metal of high endurance, is used in R-S Valve applications where hard wear and severe stresses are encountered. Has a tensile up to 50,000 psi and is readily machinable. Replaces vital victory production metals and is considerably lower in price.

For the simplified manual or automatic control and shut-off of any material that flows or is forced through a pipe, investigate R-S Butterfly Valves. Six revolutions of the hand wheel complete the full vane movement. Sizes to 84-inches and pressures to 900 pounds.

VALVE DIVISION
R-S PRODUCTS CORPORATION
4527 Germantown Avenue Philadelphia, Pa.

R-S Streamlined BUTTERFLY VALVES

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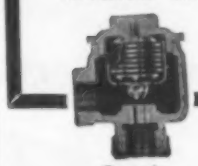
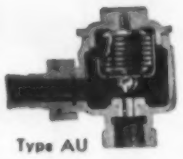
It Takes a Trap with Guts to Stand the Gaff of Round-the-Clock Operation in America's War Plants



Type A

NICHOLSON THERMOSTATIC TYPE INDUSTRIAL TRAPS HAVE WHAT IT TAKES

Long life, large capacity . . . no air-binding, no dribbling, no adjustment, no water-logged units, no freeze-ups. Positive intermittent action discharges condensate and air simply and efficiently.

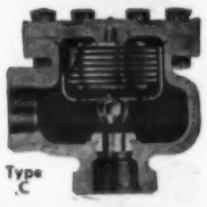


Type AU

Full Details in Bulletin No. 242

Sizes 1/4" to 2". . Pressures from vacuum to 300 lbs. . . types for all applications.

Type B

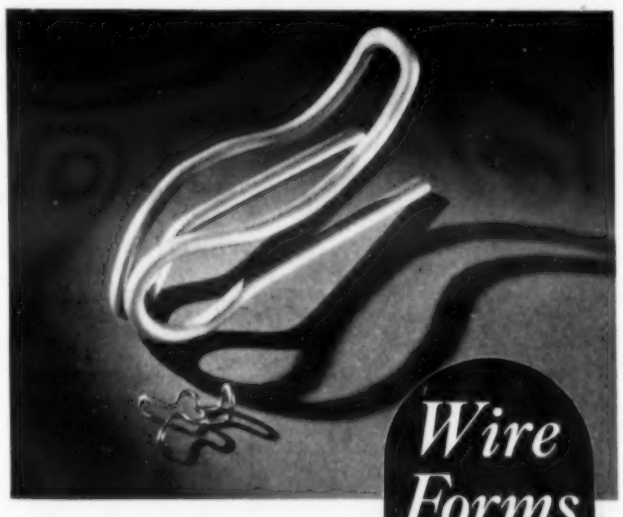


Type C

W. H. NICHOLSON & CO., 162 Oregon St., Wilkes-Barre, Pa.

NICHOLSON Traps
THERMOSTATIC ▼ PISTON AND WEIGHT-OPERATED STEAM GASOLINE AND COMPRESSED AIR TRAPS
CONTROL VALVES ▼ FLOATS ▼ MANDRELS ▼ STEAM AND AIR SEPARATORS

▲ Mention Item NED-2684 when writing ▲



Wire Forms OF ANY SHAPE PRODUCED BY MUEHLHAUSEN

★ Muehlhausen's ability to produce a variety of wire forms permits greater latitude in the design of war products. Skillful tool makers and extensive forming equipment assure the exact wire form in sufficient quantities to meet practically any requirement.

MUEHLHAUSEN SPRING CORPORATION
Division of Standard Steel Spring Company
550 Michigan Avenue, Logansport, Ind.

MUEHLHAUSEN SPRINGS
EVERY TYPE AND SIZE

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HELLER NUCUT U.S.A.

MORE CUTS WITH NUCUTS

GETS YOUR FILING DONE
. . . in a Hurry

When you change to NUCUT, you'll find you can noticeably step up all your filing. Repairs, overhauls, fix-ups — everything that calls for cutting, shaping or finishing can now be done *faster* the NUCUT way.

The reason? It's in the teeth. NUCUT Teeth are of two kinds, — coarse and fine. The coarse teeth cut deep, clean, true. The fine teeth level off the surface smooth. Both work at the same time! The result is more, better, speedier filing with less effort!

See your supplier for the lengths, shapes and cuts you need for iron, steel, aluminum, bronze, copper, slate and wood.

HELLER BROTHERS COMPANY
America's Oldest File Manufacturers—Good Tools Since 1836
Newark, New Jersey Newcomerstown, Ohio

HELLER NUCUT FILES WAVY TEETH
PAT. NO. 2027039

▲ Mention Item NED-2686 when writing ▲

Chicago Rivet AND MACHINE CO.
9606 W. JACKSON BLVD., BELLWOOD, ILL. (Chicago Suburb)
TUBULAR AND SPLIT RIVETS IN ALL RIVET METALS

▲ Mention Item NED-2687 when writing ▲

ASK THE MEN WHO HANDLE 'EM!

"I run a Mercer No. 7 and believe you me it's a sweetheart — smoothest tonnage tackler on wheels!"

The MERCER Model 7 CRANE handles loads up to 7 tons... Smaller models available with 3 and 5 ton capacities. All three sizes are compact...fast ...steady...and deliver hard, continuous service at low cost. Gasoline-powered. One man operation. Special new catalog describes and pictures complete line. Write for your copy today!

"THE NAME THAT CARRIES WEIGHT"

MERCER WHEEL • TRACTOR CRANES
LIFT TRUCKS • TRAILER TRUCKS • BATTERY TRUCKS
MANUFACTURED BY
MERCER ENGINEERING WORKS, INC., 30 CHURCH STREET, NEW YORK
Works: Clifton (Allwood), N. J.

▲ Mention Item NED-2688 when writing ▲

IMPROVE Your EQUIPMENT...

with BUILT-IN Paragon TIMERS

Automatic reset sequence timer

Do you manufacture electrically controlled machinery or equipment? If so . . . consider building in Paragon Timers. They save time, speed output, improve human efficiency . . . give your equipment the edge over competition.

A few of the many types of equipment which now include built-in Timers are: laundry equipment, processing machinery, sandblast equipment, refrigeration compressors, lubricating equipment, heat treating ovens, battery chargers, etc. Ask a Paragon Timer engineer to help plan your post war equipment. No charge; no obligation.

PARAGON ELECTRIC COMPANY
413 So. Dearborn St. • Chicago, Illinois

Paragon Chicago
BUILDERS OF ELECTRICAL EQUIPMENT SINCE 1905

▲ Mention Item NED-2689 when writing ▲

New Literature—Continued

BLIND RIVETS—16-page illustrated handbook No. A-43 gives complete information on Cherry blind rivets which are designed for one-man application, requiring no bucking bar—they have positive mechanical action and can be applied at rate of 800 to 1600 per hour, depending on type of rivet used—blind rivets are available in hollow and self-plugging types—chart, diagrams and dimensional sketches present clear picture of how rivets are used for new airframe construction, field repair and airframe salvage—issued by Cherry Rivet Co., Dept. 64, Los Angeles, Calif.

▲ Mention Item NED-2690 when writing ▲

LATHES—20-page illustrated bulletin No. H-3 entitled, "The Installation and Leveling of the Lathe" covers many points which must be taken into consideration when installing lathes so that most efficient operation can be obtained—some of subjects covered and illustrated are unpacking lathe, illuminating, floor layout, supporting and securing—procedures for horizontal and transverse leveling, both as installation and maintenance operations, are given in detail—issued by South Bend Lathe Works, Dept. N3, South Bend, Ind.

▲ Mention Item NED-2691 when writing ▲

COMPRESSORS AND PUMPS—20-page illustrated bulletin No. B6211 describes Ro-Flo compressors and pumps of sliding vane type—motors may be directly connected to Ro-Flo units which operate at high speeds, 1200 or 1800 revolutions per minute, thus effecting additional wartime saving—light in weight, they require only light and inexpensive foundations—complete engineering description is supplemented by installation diagrams—curves show relationship between pressure temperature and volume—sectional views and photographs are also included—issued by Allis-Chalmers Mfg. Co., 6900 Norman St., Milwaukee, Wis.

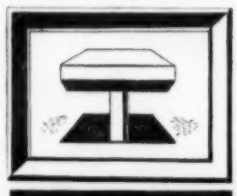
▲ Mention Item NED-2692 when writing ▲

METAL CUTTING TOOLS—52-page illustrated manual contains complete information on care, handling and most efficient methods of using Kennametal tools—more than one hundred drawings illustrate tool applications, operations, tool styles and instructions for grinding, tool design and brazing blanks to used shanks to make tools in operator's shop—tables set forth grinding wheel recommendations, suggested speeds of operation in relation to hardness of workpiece, proper chip breaker dimensions and correct grade selection—issued by McKenna Metals Co., 171 Lloyd Ave., Latrobe, Pa.

▲ Mention Item NED-2693 when writing ▲

STANDARD STEEL ANALYSIS—7-page revised standard steel analysis chart embraces all modifications of AISI, SAE and new steels up to February 1—chart shows whether or not the various types of products are available in specific analyses, together with listing varying amounts of different component elements used in producing various grades of steel—covers carbon and free cutting steels, manganese, nickel, nickel chromium, molybdenum, chromium, chromium vanadium, silicon manganese and NE steels—issued by American Steel & Wire Co., Rockefeller Bldg., Cleveland, O.

▲ Mention Item NED-2694 when writing ▲

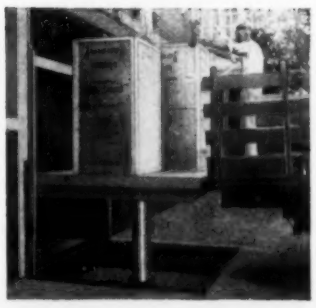


Presto...

IT'S GONE!

A Loading Dock and Ramp That Disappears at the Push of a Button!

Releases MANPOWER —Speeds up heavy Loading like M-A-G-I-C!



Simple, rugged and powerful—LEVELATORS are the answer to your loading problems! When *down* they disappear into the floor . . . leaving a clear passage for traffic flow! Loads are rolled on *at floor level*, then with the flip of a lever or push of a button, the heaviest load is positioned *quickly* at any desired height . . . no space-taking ramp or loading dock . . . no inclines to cause accidents! . . . LEVELATORS are easy to install. Operation is simple . . . The sturdy Oil-hydraulic jack rises as oil is pumped by an electric pumping mechanism (or by compressed air when available). Write for manual of interesting applications today. Rotary Lift Company, 1075 Kansas, Memphis, Tenn.

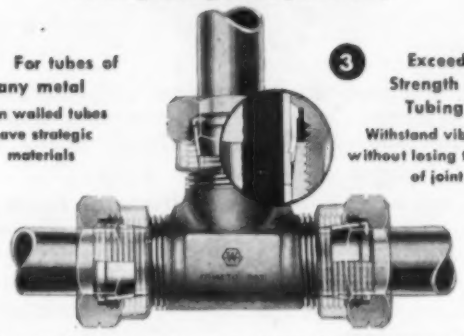
Rotary MEMPHIS LEVELATORS

▲ Mention Item NED-2695 when writing ▲

★ ★ ERMETO FITTINGS ★ ★

3 outstanding advantages

1 Easy Installation
No flaring, welding, soldering or threading



2 For tubes of any metal
Thin walled tubes save strategic materials

3 Exceed Burst Strength of Tubing
Withstand vibration without losing tightness of joint

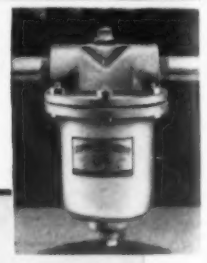
Ermeto fittings meet every demand of engineer and designer for a tube coupling that will withstand high pressure and extreme vibration. If the tubing will carry the pressure Ermeto will hold it. Write for complete details.

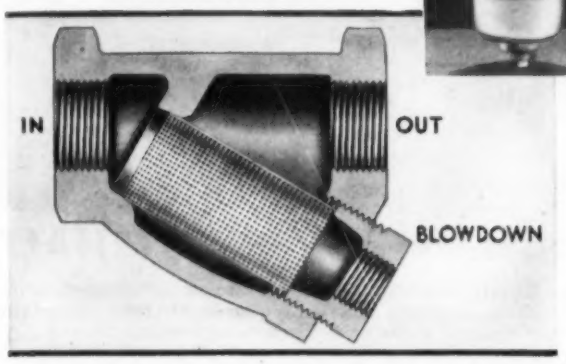
THE WEATHERHEAD COMPANY, 300 E. 131st St., Cleveland, Ohio

WEATHERHEAD
TUBE FITTINGS • FLEXIBLE HOSE • VALVES • DRAIN COCKS
AVIATION, AUTOMOTIVE AND REFRIGERATION SPECIALTIES

▲ Mention Item NED-2696 when writing ▲

The manufacturer of SUPER-SILVERTOP STEAM TRAPS also makes—





ANDERSON self-cleaning STRAINERS

● *Anderson* improved strainers with their stainless steel elements remove scale, grit and sediment from the steam line.

This strainer cleans itself when a blowdown valve is used or when the pipe plug is removed. It's easy to install and inexpensive so that one can be used on every piece of equipment—pressure regulating valves and metering devices, liquid and gas lines, steam traps and air tools, spray heads and oil burners, solvent stills and temperature regulating valves. Write for "How To Choose A Steam Trap" which gives complete specifications.

THE V. D. ANDERSON COMPANY
1932 West 96th Street • Cleveland, Ohio

▲ Mention Item NED-2697 when writing ▲

Attention Gage Users
IMMEDIATE DELIVERY

WESTERN UNION

TO ALL GAGE USERS
YOU ARE OFFERED IMMEDIATE DELIVERY
FROM COMPLETE STOCK ALL MODELS ALL
SIZES AGD ADJUSTABLE SNAP GAGES STOP
ORDERS SHIPPED WITHIN 24 HOURS
THE SHEFFIELD CORPORATION

HOW TO ORDER
State Frame Model and Frame Size. Stipulate whether gage is to be set and sealed. Give complete marking instructions if set and sealed.

FOR SPECIFICATIONS SEE SHEFFIELD HANDBOOK No. 42-2 PAGES 150-153

THE SHEFFIELD CORPORATION
DAYTON, OHIO, U. S. A.

▲ Mention Item NED-2698 when writing ▲

Use a Motor THAT JUMPS THE HUMPS

It's the load humps that bump off your motors long before their time—overloads caused by jamming of machines or other unforseen troubles. And you know what a burnt-out motor means—lost production, waste materials, repair or replacement costs and delays—needless and avoidable grief.

Use motors that jump the humps—motors with built-in Klixon Protectors. When there's a dangerous overload, the snap-acting Klixon Protector simply cuts the motor off the line. The motor stops. No damage is done. No burnouts. After the motor cools to a safe operating condition, it starts again—either automatically or by manual reset. Insist on motors with built-in Klixon Protectors every time.

KLIXON

SPENCER THERMOSTAT COMPANY
Attleboro, Mass., U. S. A.

▲ Mention Item NED-2699 when writing ▲

THE HURRICANE BLEW IT OFF *but*

2 FLOORS NOW DO THE WORK OF THREE WITH Sarco

The hurricane blew the top floor of the New England Overall Company to the ground. A rearrangement of machines—plus a speed-up produced by all-Sarco steam traps and controls—enabled this company to do more business with two floors than they formerly did with three.

The owner says: "If you have three wash wheels, you should be able to load them up all at the same time. If your plant is full of presses, pants stretchers, tumblers, etc., no one machine should be slowed up by any or all of the others. Our contractors advised a separate Sarco steam trap for each machine—we know now it would have been folly to do it any other way. I know what steam costs and what it costs to have operators wait. I'll spend a dollar to save ten anytime." Catalog No. 350.

145

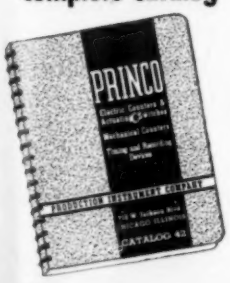
SARCO SAVES STEAM

SARCO COMPANY, INC.
475 Fifth Avenue, New York, N. Y.
Sarco Canada Ltd., Federal Bldg., Toronto, Ont.

▲ Mention Item NED-2700 when writing ▲

Measure Production AUTOMATICALLY

Save Time and Materials with PRINCO MECHANICAL and ELECTRIC COUNTERS Write for Complete Catalog



Counting Problems Solved!

Princo Mechanical and Electric Counters are made in types and sizes to meet widely varying requirements. Our extensive experience is available to users in applying Counters. For suggestions just tell us what you want to do.

Complete Catalog mailed promptly on request.

Production Instrument Company
700-12 W. JACKSON BLVD. CHICAGO, ILL.
Manufacturers of Counting, Timing and Recording Devices

▲ Mention Item NED-2701 when writing ▲

New Literature—Continued

SAFETY EQUIPMENT—134-page illustrated catalog No. 50 contains descriptions of complete line of safety equipment for protection of workers in all types of industry—face shields, goggles, helmets, welder's equipment, respirators, gloves, wearing apparel and medical supplies are some of the products covered—machine guards and inspection equipment are also described—practically any product related to worker's safety is covered—issued by Boyer-Campbell Co., 6540 Antoine St., Detroit, Mich.

▲ Mention Item NED-2702 when writing ▲

DIE CUSHIONS—two illustrated bulletins give information regarding pneumatic die cushions—28-page bulletin lists important installation instructions and is service manual—8-page supplementary bulletin outlines typical applications in using pneumatic die cushioning equipment in combination with press operations—die cushions are applicable to all types of presses—issued by Dayton Rogers Mfg. Co., 2832 Thirteenth Ave., S., Minneapolis, Minn.

▲ Mention Item NED-2703 when writing ▲

CRANE AND HOIST MAINTENANCE—104-page illustrated "Maintenance and Operation Manual" shows how to maintain material handling equipment in perfect operating condition—sectional photos and line drawings list parts of cranes and hoists, and text explains correct maintenance procedure—manual is compiled for operating men responsible for servicing cranes and hoists—all phases are covered—issued by Shephard Niles Crane & Hoist Corp., Montour Falls, N. Y.

▲ Mention Item NED-2704 when writing ▲

LOCALIZED LIGHTING—16-page illustrated booklet explains flexibility of Dazor Floating lamps—lamp may be placed at angle where it stays without further adjustment or locking until changed to another position—four types of bases are available: universal model, pedestal model, desk model, bracket model—lamp is provided with fluorescent or incandescent lighting—issued by Dazor Mfg. Co., 4485 Duncan Ave. NE, St. Louis, Mo.

▲ Mention Item NED-2705 when writing ▲

GRINDING WHEELS—436-page illustrated book, "Grinding Wheels and Their Uses", by Johnson Heywood tells how to do all types of grinding—this second edition has eight completely new chapters—contains 436 illustrations and figures and fifteen tables of wheel recommendations—sponsored by Grinding Wheel Manufacturers Association, book covers entire field of grinding from thoroughly practical viewpoint—it is fully indexed for instant reference—price is $3 postpaid—issued by The Penton Publishing Co., 1213 West Third St., Cleveland, O.

▲ Mention Item NED-2706 when writing ▲

SYNTHETIC RUBBER—booklet describes improved synthetic rubber compound which is proving useful in marine, aircraft and automotive fields—comparative properties of Perbunan, Hycar, Thiokol and various Neoprenes are shown—several pages are devoted to cold resistant Neoprene compounds—data is available showing formulations which conform to Army and Navy specifications—only firms engaged in war effort may receive this book—issued by Western Felt Works, 4115 West Ogden Ave., Chicago, Ill.

▲ Mention Item NED-2707 when writing ▲

INSTALL HALLOWELL SHOP EQUIPMENT

1367 ready made Work-Bench Combinations give you *just* what you want.

Fig. 928 Pat'd and Pats. Pending. Drawer is extra.

The line of "Hallowell" Work-Benches is so complete you can quickly and easily meet your exact requirements by choosing from our Catalog. All are of sturdy construction and will stand strong and rigid without costly, time taking bolting to the floor. Tops of laminated wood, Masonite or, if advantageous, of steel. Five leg heights and widths. Send for the "Hallowell" Shop Equipment Catalog today.

STANDARD PRESSED STEEL CO.
JENKINTOWN, PENNA. BOX 881
—BRANCHES—
BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

▲ Mention Item NED-2708 when writing ▲

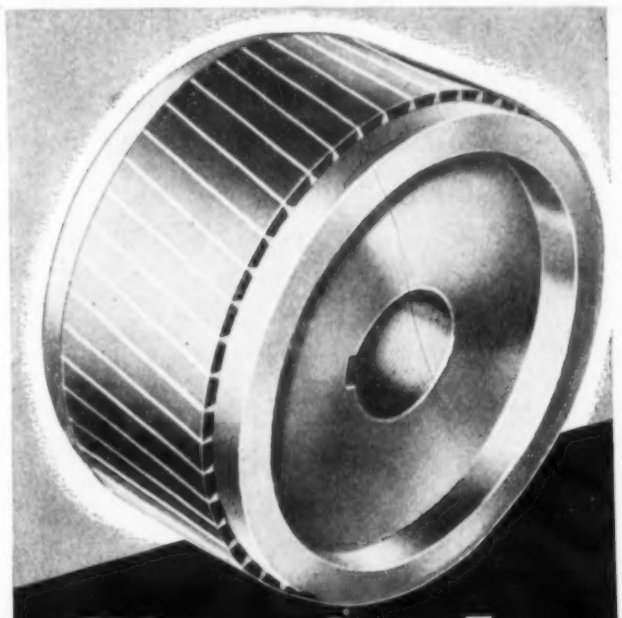
NUTS SCREWS RIVETS BOLTS

CLARK PRODUCTS
PLAY A VITAL PART IN OUR DEFENSE PROGRAMS
FAST on the Assembly Line—TOUGH where they have to be, and KIND to the hands that handle them.
Send for our latest catalog

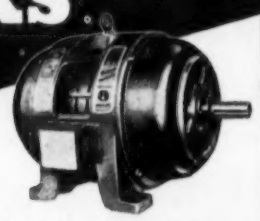
1854 — 1943

MILLDALE CLARK BROS BOLT CO. CONN.

▲ Mention Item NED-2709 when writing ▲



Give it the "works"



Copperspun

No single feature, no matter how outstanding, can make an over-all good motor. But when all mechanical and electrical characteristics of a motor rate at the top, and then you add a rotor centrifugally cast in *one piece* and of PURE COPPER—then you really have something. And that is what you get in a Fairbanks-Morse Motor with Copperspun Rotor.

That's why you can give these motors the "works." That's why you can run them at full rated capacity continuously without fear of damage from overload. You can't buy extra size—but you can buy extra stamina.

Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago. Branches with service stations throughout the United States and Canada.

FAIRBANKS-MORSE Motors

DIESEL ENGINES, PUMPS, MOTORS, GENERATORS, SCALES, WATER SYSTEMS, FARM EQUIPMENT, STOKERS, AIR CONDITIONERS, RAILROAD EQUIPMENT

▲ Mention Item NED-2710 when writing ▲

THERE'S A LESSON IN THIS WAR...

FOR MACHINE TOOL USERS!

The war proves that light, fast PT boats and destroyers are as important a part of a fighting navy as heavy battleships. In war plants, too, industry finds that Walker-Turner fast, compact, well-built machine tools are as essential to today's enormous production program as the heavier units. Management, alert to improved methods, shows growing preference for Walker-Turner Machine Tools because: (1) They are quickly available, (2) Their weight conservation is effected by careful design and discriminating selection of material, (3) Prices are low, (4) Unskilled labor finds them easy to operate.

Our new catalog will give you a better idea of this vital industrial development.

WALKER-TURNER COMPANY, INC.
2763 Berckman Street, Plainfield, N. J.

▲ Mention Item NED-2711 when writing ▲

ECLIPSE SPRAY GUNS
...now made of PLASTIC!

★ ⅓ lb. lighter than with the aluminum body.

★ Strong, durable, not affected by paints, thinners, etc.

★ On priority, but delivery is good.

Send for Catalog 80P

ECLIPSE AIR BRUSH CO., Inc.
309 Park Avenue
NEWARK, N. J.

ECLIPSE

▲ Mention Item NED-2712 when writing ▲

New! Wakefield COMMODORE INDUSTRIAL UNIT

- Gives 86% of light from bare bulb . . 75% down; by E.T.L. test
- Plaskon reflector means light weight
- Only 13 oz. of steel . . helps WPB conservation
- Gives light up, as well as down
- No dark ceilings; no eyestraining contrasts
- Easy to clean . . easy to handle
- For lamps from 200 to 500 watts

Write for Details

THE F. W. Wakefield BRASS COMPANY
RED ● SPOT LIGHTING FOR COMBAT OPERATIONS AND WAR PRODUCTION
VERMILION, OHIO

▲ Mention Item NED-2713 when writing ▲

New Literature—Continued

PUMPS—28-page illustrated manual entitled, "The Care and Maintenance of Pumps and Water Systems" helps owners of all types of pumps, water systems and power sprayers on proper installation, care and service of his particular unit—some pumps covered are of plunger, centrifugal, turbine, built-in-ejector and rotary shallow well pump types—typical applications are included—issued by F. E. Myers & Bro. Co., Ashland, Ohio.

▲ Mention Item NED-2714 when writing ▲

SPEED REDUCERS—24-page illustrated booklet, "There Is More Than Meets the Eye in Speed Reducers", describes company's facilities for producing speed reducers—history of company is sketched, and both former and present products are illustrated—typical problems solved by engineers are explained and several installations are shown—issued by Winfield H. Smith, Inc., 22 Eden St., Springfield, Erie County, N. Y.

▲ Mention Item NED-2715 when writing ▲

SPREADER STOKER—12-page illustrated bulletin, "Burns Coal Like Oil", explains operation of Fyr-Feeder multiple spreader stoker—theory of spreader stoker is that of spreading coal over fire in such way that larger pieces are distributed over grate, while finer particles burn in suspension—stoker automatically grades coal—because coal is spread by air, each piece is provided with enough oxygen for perfect combustion—typical installations are shown—issued by American Coal Burner Co., 10-18 E. Erie St., Chicago. Ill.

▲ Mention Item NED-2716 when writing ▲

FLUORESCENT MAINTENANCE — 20-page illustrated pocket-size reference booklet, entitled "Timely Wartime Tips on Fluorescent Maintenance," outlines setting of regular maintenance routine, how to determine frequency of regular cleaning schedule and how to figure number of lamp replacements per month—issued by Sylvania Electric Products, Inc., Lighting div., Dept. FWM, 60 Boston St., Salem, Mass.

▲ Mention Item NED-2717 when writing ▲

STAINLESS STEEL—3-page special service report entitled, "The Fabrication and Surface Treatment of Stainless Steels", discusses subject of machining stainless steel—report describes effective tool grinding practices and selection of proper cutting lubricant—formulas for lubricating free machining grades as well as tough grades of stainless steel are given—included are suggestions on removing lubricating compounds, heat treating scale and shop dirt between manufacturing operations and before inspection and assembly—issued by Oakite Products, Inc., 32G Thames St., New York City.

▲ Mention Item NED-2718 when writing ▲

PRECISION LATHES—8-page illustrated catalog No. 10 describes 10-inch toolroom lathes and quick change gear lathes in both floor leg and metal bench models—both models are made in two types, 1-inch collet and regular—former has 1-inch maximum collet capacity and twelve spindle speeds of 50 to 1357 revolutions per minute—latter has 11/16-inch maximum collet capacity and six spindle speeds of 50 to 700 revolutions per minute—attachments, accessories and tools for use with these lathes are also listed—South Bend Lathe Works, Dept. N3, South Bend, Ind.

▲ Mention Item NED-2719 when writing ▲

NEW!
Simple, Safe
Method of handling ACIDS and CHEMICALS!

SPEARE'S SAFETY SIPHON

Speare's Safety Siphon discharges acids and chemicals by the safe vacuum principle. Works in Carboys, Drums and Barrels. Consists of sturdy acid-resistant casing—flexible Saran plastic siphon tube—and positive flow control valve. Has no glass parts to break, requires no bulbs or auxiliary pumping apparatus, can not be overprimed or overfilled, does not build up dangerous pressures. Steady flow and instantaneous control always maintained. Fully tested for Sulfuric, Nitric, Hydrochloric (Muriatic), Sulfurous, Glacial Acetic, Acetic Acids, bleaching solutions and other chemicals. Reasonably priced. Write for detailed literature.

Full line of other specialized safety equipment is described in leaflet "Safe Handling of Acids and Chemicals". Write for a copy.

PULMOSAN SAFETY EQUIP. CORP.
Dept. NED
176 Johnson St., Brooklyn, N. Y.

▲ Mention Item NED-2720 when writing ▲

Northern
HI-LIFT ELECTRIC HOISTS
168-Hour Week Workers

They stay on the job because they have the strength and construction quality. One piece welded frames—turned and ground shafts—large size roller bearings—machine cut heat treated gearing—splash lubrication. All parts readily accessible for maintenance that usually isn't needed.

Hi-Lift feature makes better use of headroom—capacities 1000 lbs. to 15 tons.

Write for Literature

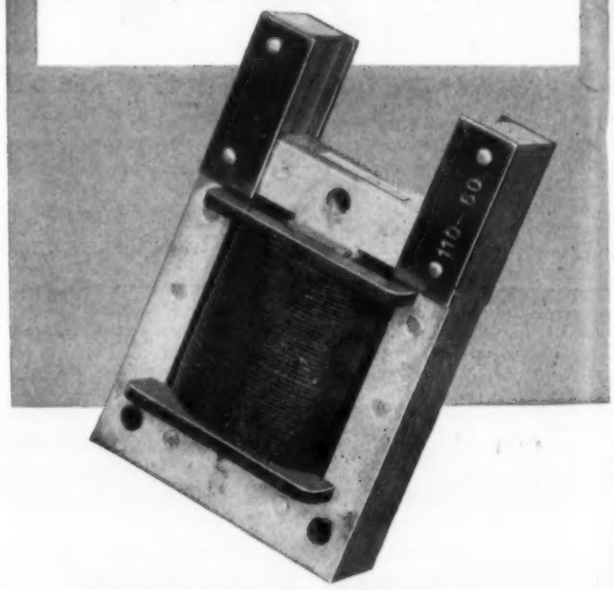
NORTHERN ENGINEERING WORKS, 2607 Atwater St., Detroit, Mich.

CRANES *Northern* HOISTS

▲ Mention Item NED-2721 when writing ▲

BUILT IN... FOR LIFE!

The electric hands that control automatic machines



NAMCO SOLENOIDS

were first designed and built for Acme-Gridley high-precision Automatics. On our own "proving ground," we made certain of their sure, positive performance under severe operating conditions on heavy-duty machine tools.

Electrically and mechanically, they have stood up through literally *millions* of contacts on machines that have no time for failure.

Compact, ruggedly constructed, "Stellite-Weld" bonded, and "Stellite" wearproof contacts—they insure freedom from trouble for the life of the machine.

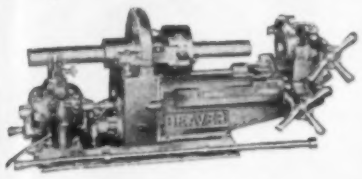
For original equipment or replacement, there is a wide selection of NAMCO Solenoids—push, pull or combination types—capacities 4 to 30 pounds.

Bulletin EM-41 will give you complete details.

ELECTRICAL MANUFACTURING DIVISION
THE NATIONAL ACME CO.
CLEVELAND, OHIO

▲ Mention Item NED-2722 when writing ▲

The A-B-C of Pipe and Bolt Machines!

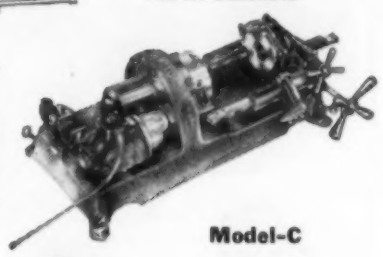


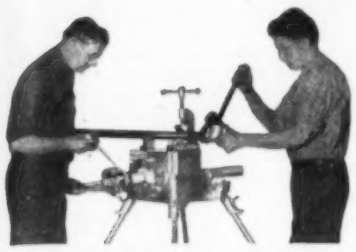
Model-A

A high-speed heavy-duty deluxe Pipe and Bolt Machine. Range ½ to 2-inch—up to 12-inch with geared tools and drive shafts. Bolts, ¼ to 2-inch. Wt. 415 lbs. Ask for Bulletin-A.

Model-B

A compact utility Pipe and Bolt Machine combining many features of Model-A with the easy portability of Model-C. Range ½ to 2-inch — up to 8-inch with drive shaft and geared tools. Bolts up to 1½-inch. Weight 280 lbs. Ask for Bulletin-B





Model-C

A sturdy little Power Unit

Converts Hand Pipe Tools into Power Tools from ½ to 8-inches. Threads 8-inch in 6 minutes. Threads bolts up to 1½-inch. Equipped with automatic chuck wrench ejector — a safety feature. Two men can use it at the same time without interference. Easily portable—weighs about 150 lbs. Write for Bulletin-C

BEAVER PIPE TOOLS

543 HENRY AVE. WARREN, OHIO

▲ Mention Item NED-2723 when writing ▲

MECHANIZE Your Screw Driver Army

Phillips Screws Permit Fast Driving Methods

You can have the advantages of power or spiral driving on almost any job. Automatic centering of driving force in the Phillips Recessed Head eliminates driving troubles that often make fast driving methods impractical.

Wobbly starts . . . slant-driven screws . . . broken-head screws . . . dangerous skidding of driver points . . . all are forgotten problems in plants using screws with the Phillips Recessed Head. "Green hands" do skilled work, and work faster. Savings of 50% in driving time are common.

PHILLIPS *Recessed Head* SCREWS

Wood Screws • Machine Screws • Self-tapping Screws • Stove Bolts

21 SOURCES . . . American Screw Co. • The Bristol Co. • Central Screw Co. • Chandler Products Corp. • Continental Screw Co. • The Corbin Screw Corp. • The H. M. Harper Co. • International Screw Co. • The Lamson & Sessions Co. • The National Screw & Mfg. Co. • New England Screw Co. • The Charles Parker Co. • Parker-Kalon Corp. • Pawtucket Screw Co. • Pheoll Mfg. Co. • Reading Screw Co. • Russell, Burdsall & Ward Bolt & Nut Co. • Scoville Mfg. Co. • Shakeproof Inc. • The Southington Hardware Mfg. Co. • Whitney Screw Corp.

▲ Mention Item NED-2724 when writing ▲

LICK YOUR CLEANING PROBLEMS the *HIGH PRESSURE SPRAY WAY!*

HYPRESSURE JENNY

Steam Cleaner sprays, under pressure, a highly atomized mixture of steam, hot water and cleaning compound that completely removes dirt and grease 8 to 10 times faster than hand methods. Features include self starting, instant steaming, portability, simplicity of operation, welded construction, highest efficiency. Write for full information.

HYPRESSURE JENNY
Cleans...
Machinery
Floors · Walls
Windows
Buildings
Skylights
Cranes · Conveyors
Transformers
Chassis
Motor Blocks
Crank Cases
Transmissions
Airplane Engines
Fuselages
Safety Belts
Tractors
Road Rollers
Compressors
Hoists & Booms
Vats, Cookers, Mixers
Refrigerator Cars
Stock and Tank Cars
Dairy Equipment

HYPRESSURE JENNY DIVISION OF

HOMESTEAD VALVE MFG. CO.

P. O. BOX 84 • • • • CORAOPOLIS • • • PENNSYLVANIA

▲ Mention Item NED-2725 when writing ▲

New Literature—Continued

MILLING MACHINE—4-page illustrated folder describes Cleveland No. 1½ horizontal milling machine—table can be set for full automatic cycle, giving rapid approach, feed and rapid return from either direction continuously; or can be arranged to stop at end of cycle—catalog includes dimensional drawings and general specifications—issued by The Sommer & Adams Co., 18515 Euclid Ave., Cleveland, O.

▲ Mention Item NED-2726 when writing ▲

V-BELTS—two 16 x 21½ inch comparison charts are planned to help buyer select V-belt to meet his requirements—one chart lists various Browning FHP belts, showing their inside length, outside length, list price and six comparable competitive makes—other chart lists Gripbelts, showing pitch length, list price, weight in pounds and numbers of six competitive makes—issued by Browning Mfg. Co., 1940 Browning Dr., Maysville, Ky.

▲ Mention Item NED-2727 when writing ▲

V-BELT FASTENERS—4-page illustrated bulletin No. 43-A discusses use of Shippert fasteners to obtain extra horsepower hours from V-belts—fasteners are of three types; Rola-Flex lacing to connect duck fabric, rubber or leather belts, Grip-Flex lacing to connect cord type belts, and Tite-Grip fasteners for connecting small V-belts of all makes and for reinforcing small breaks—issued by Shippert Mfg. Co., 414-A S. Galena Ave., Dixon, Ill.

▲ Mention Item NED-2728 when writing ▲

CONSTRUCTION SERVICE—24-page illustrated booklet, "The Story of Ziebarth Construction", relates various unusual projects which were undertaken and completed by this construction organization—included is story of world's largest single electrical installation which organization completed at Basic Magnesium, Inc., at Las Vegas, Nevada—copies may be obtained from Fritz Ziebarth, 860 W. Esther St., Long Beach, Calif.

▲ Mention Item NED-2729 when writing ▲

METAL CUTTING BANDSAW—4-page illustrated bulletin describes in detail Johnson metal cut-off band saw—machine will cut rods, tubes and angles in capacities up to 10-inch rounds and 18-inch flats—cutting speeds are approximately 35, 90, 130, 190 feet per minute—cutting pressure is controllable so there is no danger of heavy burring or gouging when cutting thin-walled sections—issued by Johnson Mfg. Corp., Albion, Mich.

▲ Mention Item NED-2730 when writing ▲

LIQUID LEVEL GAGES—4-page illustrated bulletin No. 40 describes line of gages for indicating liquid levels in tanks containing milk, solvents, water, tar, acids, oils, fuels and other fluids—designed for use with tanks from 3 to 80 feet deep, these gages are built in sizes from 10 to 100 inches—issued by Trimount Instrument Co., 37 West Van Buren St., Chicago, Ill.

▲ Mention Item NED-2731 when writing ▲

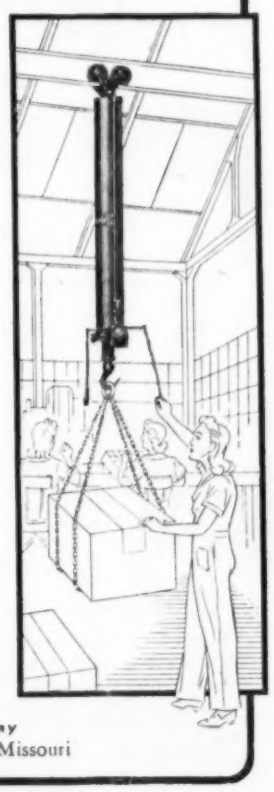
NICKEL ALLOYS—16-page illustrated bulletin presents data on eight INCO high-nickel alloys and their corrosion resistant uses in chemical process industries—service characteristics of metals, mechanical properties, physical constants and other pertinent data are presented in comparative tables and charts—issued by The International Nickel Co., 67 Wall St., New York City.

▲ Mention Item NED-2732 when writing ▲

Where Women are Employed in Industry

CURTIS AIR HOISTS

Make Lifting Easy
Reduce Fatigue



★ If you are employing women in your plant, you can convert most manual lifting operations, make tough jobs easy, and speed up output with Curtis Air Hoists.

Curtis Air Hoists provide these important advantages:

- Smooth, fast, accurate control of loads
- Low first cost — lowest operating expense
- Light weight—pendant, bracketed, or rope compounded types
- Immunity to abuse or overloads
- One-man or woman operation — finger-tip control

By using Curtis Air Hoists, production can be speeded up and skilled labor released for other jobs.

CURTIS PNEUMATIC MACHINERY DIVISION
of Curtis Manufacturing Company
1979 Kienlen Avenue, St. Louis, Missouri

▲ Mention Item NED-2733 when writing ▲

...TO CUSHION? OR NOT TO CUSHION?

WHEN IN DOUBT

Specify Cushions FOR YOUR CYLINDERS!

YES, it is an important question. But, if there is doubt when selecting cylinders for heavy shock loads or high speed . . . play safe . . . specify Hanna *Cushioned* Cylinders. Hanna Cylinders can be equipped with adjustable *pneumatic* cushions at either end or both ends, at nominal cost. Type MC cushion is designed for standard duty. For heavy duty, long-stroke applications, Type SB cushion is recommended. When in doubt, let us help you select the *right cushion* for the job. Write for catalog No. 230.

HANNA ENGINEERING WORKS
1765 ELSTON AVENUE • CHICAGO, ILLINOIS
RIVETERS • CYLINDERS • AIR HOISTS

▲ Mention Item NED-2734 when writing ▲

We Engineered This Collision

so you can use water to fight oil fires

Water is your ideal fire-fighter — but, before WaterFOG, water could never be used effectively on oil fires. Now Rockwood *engineers* water . . . turning a solid stream into fog much finer than spray . . . to create WaterFOG for fighting flammable liquid fires in quench and dip tanks, dryers, paint shops, electrical equipment, etc.

WaterFOG is created by impinging streams from specially designed Rockwood nozzles and heads. It is engineered in correct particle size, fog pattern and velocity for your conditions. Having much greater total surface area than the same amount of water in solid stream or spray, WaterFOG absorbs heat much faster from burning vapors; being light, it *floats* gently onto the surface, lowering liquid temperature to prevent further vaporization. Then changing into steam, it envelops the fire in a smothering blanket.

The SG-40 nozzle shown at left is discharging low velocity WaterFOG through a 6' extension applicator. With a FOG-tip instead of applicator, the SG-40 provides medium velocity WaterFOG with considerable forward projection. Moving the control handle back changes the discharge to solid stream.

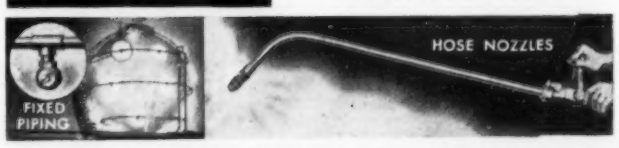
Also: complete fixed piping installations for special hazards. Rockwood installations are approved by Underwriters' Laboratories and Associated Factory Mutuals. Used by Navy, Coast Guard, hundreds of industrial plants. Write for Bulletin 123.

Executives! Colored movie (16 mm.) shows tests of Rockwood WaterFOG. Write

ROCKWOOD SPRINKLER CO., 44 Harlow Street, Worcester, Mass.
Specialists in Fire Protection Engineering Equipment and Installations since 1907

ROCKWOOD WaterFOG

Water Engineered by Rockwood Cools, Confines, Smothers Oil Fires



▲ Mention Item NED-2735 when writing ▲

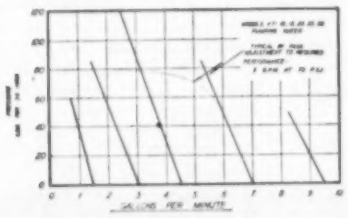
PRESENTING THE VT SERIES OF POSITIVE PRESSURE PUMPS

Model VT-25

● Designed with the usual Eastern ruggedness and dependability in a minimum of space, the new VT series includes self priming, positive pressure rotary pumps up to ½ HP size. The pumps are equipped with mechanical rotary seals and will lift water 4' to 25' depending on model. Suitable for liquids of various consistencies which do not contain solids and available with built-in by-pass where required.

Specifications

Size: From 10½" x 5" x 5" To 17½" x 7¾" x 7⅞"
Power: Up to ½ HP. Heavy duty induction or D.C. Compound wound motors are available in all enclosures.
Alloys: Pumps are standard in bronze or cast iron construction.
Weights: 15 lbs. to approximately 50 lbs.
Voltages: Available in almost all voltages and currents.
Performance: See performance on chart illustrated below. Pressure up to 125 p.s.i. Consult factory for proper selection.



EASTERN ENGINEERING COMPANY
47 FOX STREET, NEW HAVEN CONN.

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that pint you gave

IT may be that many months may pass before the blood you gave will save a life . . . the place may be thousands of miles away.

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The Ward Leonard Rheostat shown on this International Blood Plasma Centrifuge was selected as the motor control because of its dependability, its many accurate steps, and its electrical interlock which assures a slow start irrespective of when the switch is closed.

Ward Leonard Rheostats are available in a wide range of sizes for single and multi-mounting, manual or motor drive. Send for bulletins describing these and other type rheostats.

ARMY E NAVY

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RELAYS · RESISTORS · RHEOSTATS
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May, 1943

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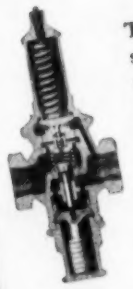
SERVICE TIPS...
For Mason No. 11 Regulators

MASONEILAN

NUMBER 2

Check the Performance



The regulator should maintain the desired pressure without cycling and should shut off tightly permitting no build-up of the controlled pressure. If it does not operate properly, it is probable that some foreign matter has collected on the seating surfaces. The regulator should in that case be disassembled and the seats cleaned as described in the booklet offered below.

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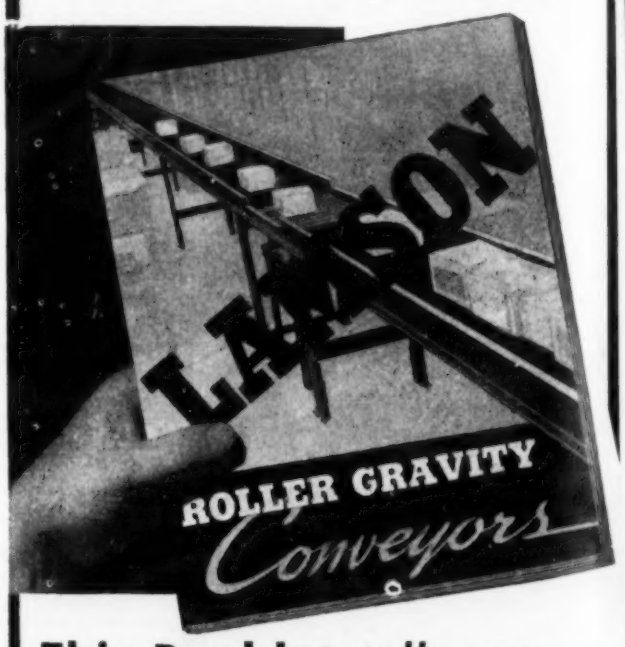

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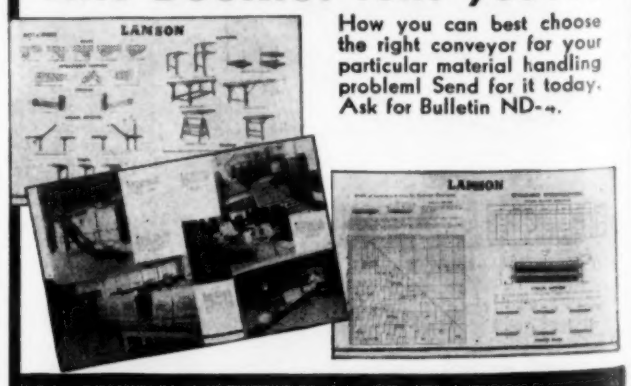

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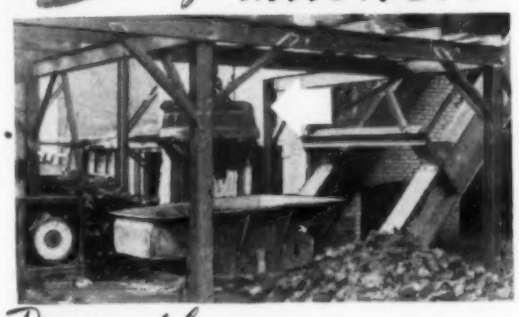

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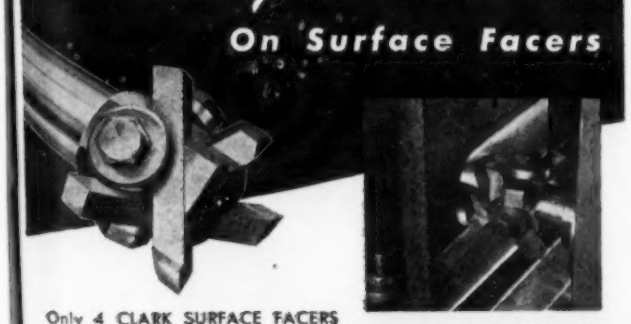
On Surface Facers



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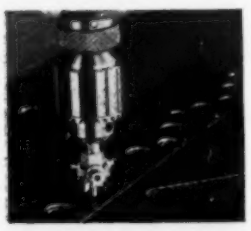

Cutting holes in thin-wall small diameter tubing with Clark Hole Cutter

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MANUFACTURERS... PRECISION TOOLS ... PRECISION PARTS

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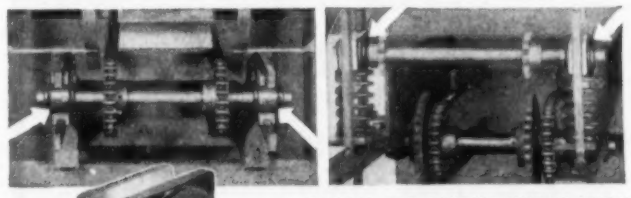
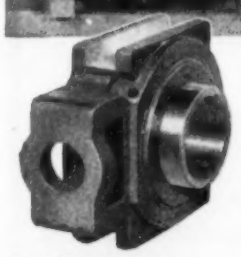
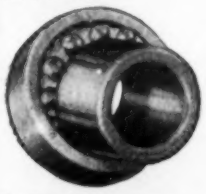


A TYPICAL TEC TAKE-UP INSTALLATION



The TEC Unit



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—Bearings are Full Self-Aligning Type—Will compensate for misalignment without impairing their efficiency.
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—Expansion or non-expansion type, optional at no extra cost.
—This TEC Series is available in shaft sizes from 3/4" to 2 3/16".

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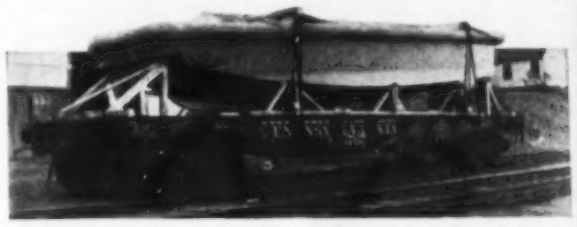
PREPARE for a Long, Rough Journey



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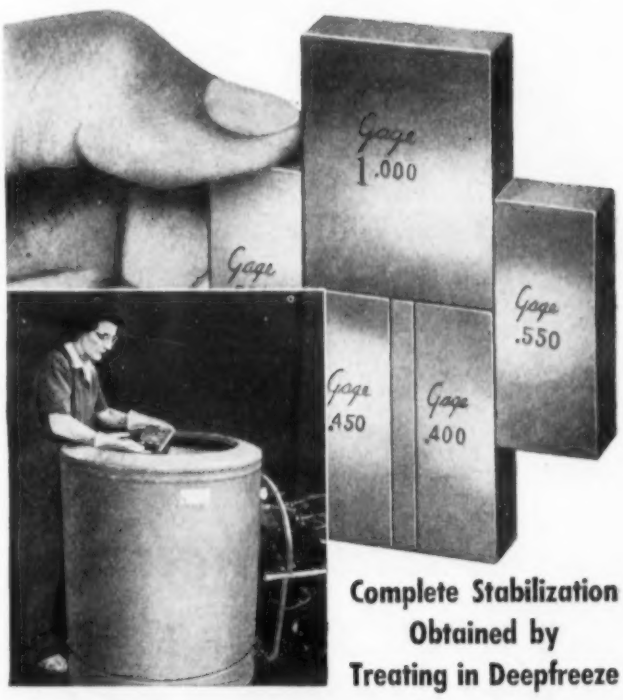
HOW METAL CHILLING KEEPS THE "ACCURACY" IN PRECISION GAGE BLOCKS



Complete Stabilization Obtained by Treating in Deepfreeze

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Deepfreeze also used to speed manufacture of gages...

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Let Deepfreeze Engineers assist you in metal chilling applications to your products. Send for free preliminary calculations and test.

FREE BULLETIN describing Deepfreeze Units with complete details and specifications, and listing other uses. Send for copy today.

Deepfreeze
DIVISION
MOTOR PRODUCTS CORPORATION
2316 DAVIS ST., NORTH CHICAGO, ILLINOIS

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Worcester, Mass.
T-487

NORTON ABRASIVES

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Write for folder illustrating and describing standard sizes. Address — Utility Box Dept. N.

SHOE FORM CO. INC.
AUBURN, N. Y.

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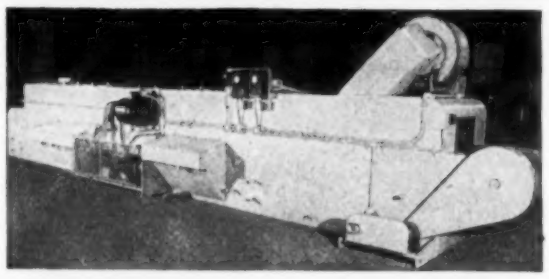

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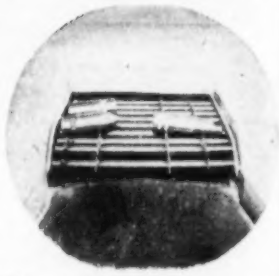

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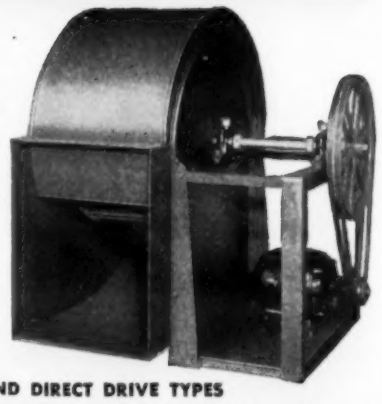

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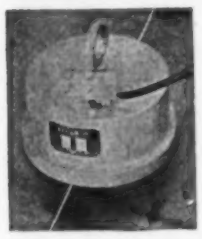

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REGROUND BALL BEARINGS—16-page illustrated booklet outlines service in regrinding worn ball bearings—sixteen steps of this procedure are shown and described in detail—finished reconditioned bearings feature service proven races, perfectly ground ball raceways, new ball retainers, lubricated and moisture proof package and guaranteed bearing performance—instructions for proper bearing installation are given—issued by Ahlberg Bearing Co., 3011 W. Forty-seventh St., Chicago, Ill.

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PIPING—16-page illustrated book entitled, "The Welding of Piping", covers various types of ferrous and non-ferrous piping, their dimensions, fabrication and estimates of welding and labor costs—issued by Air Reduction Co., 60 East Forty-second St., New York City.

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CASTINGS—32-page illustrated booklet entitled, "Quality Castings by Hamilton", contains some interesting historical views and information commemorating 50th anniversary of this company—booklet describes and illustrates some two hundred different types of castings produced in both gray iron and Meehanite—issued by The Hamilton Foundry & Machine Co., 1551 Lincoln Ave., Hamilton, Ohio.

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GEARS—72-page illustrated catalog No. 42 contains tables of dimensions for various types of gears as well as data on speed reducing units, MotoReduceRs and electric hoists—includes engineering data section—issued by The Philadelphia Gear Works, 3600 G. St., Philadelphia, Pa.

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REVOLVING TABLES—12-page illustrated bulletin No. 375 covers Ohio revolving tables—units can be arranged to suit many types of machine tools in addition to horizontal boring, drilling and milling machines—both square and round models are included—tables are accurately graduated to ½ degree—tee slots are of sufficient size and number to thoroughly secure jobs directly to table top—issued by The Ohio Machine Tool Co., Davis St., Kenton, O.

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PLASTIC PARTS—4-page illustrated folder points out possibilities of plastic parts in war production applications—all plastics fabrication is done without molds and to close tolerance specifications—among parts illustrated are generator cover plate, transparent locking device, plug for valve, gear knob, telephone coupling, commutator brush holder, threaded tube section and heater bushing—issued by Creative Plastics Corp., Kent & DeKalb Aves., Brooklyn, N. Y.

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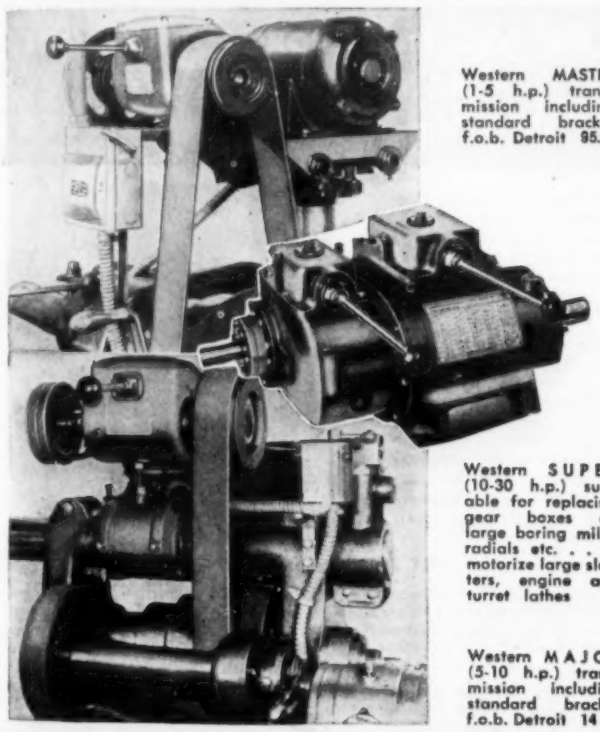

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